

# THE IRON AGE

THURSDAY, AUGUST 1, 1901.

## The Brooklyn Bridge Accident.

Late during the afternoon of Wednesday, the 24th, it was discovered that seven of the suspender rods and two of the cable bands in the center of the bridge were broken. All the breaks were in the rods under the most easterly cable, three being upon one side of the slip joint at the center and six upon the other side. Repairs were made in 48 hours and traffic resumed as usual, with the exception of an increased distance (200 feet) between the trolley cars.

To understand exactly what happened it will be

It is now necessary to explain why a compensating construction of this character was required. The cables are, of course, anchored at each end, but are free to move on top of the towers to equalize the moving loads between the anchorages and towers and between the towers on the main span. Changes in temperature merely produce a rise and fall of the cables.

In the suspended structure the conditions are entirely different. The ends of the trusses are held rigidly at each tower. To provide for expansion and contraction the center is divided and a slip joint, Fig. 4, is inserted which compensates for any lengthening or shortening of



View Showing Sag in the Center of the Bridge.

### THE BROOKLYN BRIDGE ACCIDENT.

necessary to briefly describe the design of this particular part of the bridge. From the four cables is suspended the floor system, which consists of six longitudinal trusses connected by floor beams. With the exception of the center the suspenders are steel cables varying from  $1\frac{1}{2}$  to  $1\frac{3}{4}$  inches in diameter, according to their length. The center suspenders are comparatively short, as the cables there approach very near the floor girders. Steel rods are here used instead of cables, their diameter being  $2\frac{1}{2}$  inches.

The rods are attached to the cables by means of straps or bands  $\frac{1}{2}$  inch thick by 5 inches wide. The straps are bent around the cable, their perforated ends brought together and the flattened end of the rod placed between. A screw bolt then unites the parts.

The lower end of the rod is threaded and passed through a trunnion block, a nut serving for adjustment. The block, which is a round steel bar, rests in bearings the flanges of which support the floor beams. This construction is shown in Fig. 3. It will be perceived that the rod is so supported at each end that it may have a free swinging movement parallel with the bridge.

the two parts of the truss. According to the report of Chief Engineer Martin, which follows, there is a maximum movement at the joint of 7 inches. By this arrangement there is at the center of the bridge a vertical movement of the cable and a horizontal movement of the trusses. It will therefore be understood why, since the suspender rods are attached to both the cables and trusses, they should have a free swinging movement. The sketch, Fig. 2, illustrates this. The full lines represent the suspender in its central position, the dotted lines its extreme swing to each side. If either of the suspender rod joints should become bound the rod would be bent first in one and then in the opposite direction, and the result could not help but be disastrous.

#### Chief Engineer Martin's Report.

The explanation of C. C. Martin, the chief engineer and superintendent of the bridge, to the Commissioner of Bridges, is as follows:

Hon. John L. Shea, Commissioner of Bridges.

DEAR SIR: I beg leave to make the following report upon the broken suspender rods and cable bands:

Around the cables are placed steel cable bands, which

are 5 inches wide and  $\frac{1}{2}$  inch thick. These are placed at a horizontal distance of  $7\frac{1}{2}$  feet apart. Connected to these, near the center of the main span of the bridge, on each cable, are  $2\frac{1}{2}$ -inch steel suspension rods; all of the other suspenders on the main span are made of steel wire ropes  $1\frac{1}{4}$  inches in diameter.

The object of these suspender rods and ropes is to connect the transverse girders of the floor system of the bridge to the cables, which ultimately carry the weight of the bridge with its load.

On Wednesday afternoon, July 24, it was discovered that seven of these suspension rods and two cable bands were broken, and traffic on the easterly half of the bridge was suspended. On account of the expansion and contraction of the trusses of the bridge there is a longitudinal maximum movement at the slip joints of about 7 inches, and as this movement takes place in the truss, to which the floor beams and the lower ends of

In my judgment the cause of the present breaking of several of the suspender rods is as follows: As I have said before, two of the broken rods show old breaks—one much older than the other—as indicated by the broken ends of the rods. One rod having broken, would throw additional strains on those adjoining it, and in the course of time these would give way, and the process would naturally continue unless the broken rods were replaced.

The fact that the rods on all of the other cables are sound would seem to indicate that my theory is correct, and that the fact that one rod—in all respects like all of the others, as far as can be seen—broke long in advance of the others, or that it broke at all would seem to indicate that it was originally defective.

The bridge is now in perfect working order and is entirely safe. Respectfully,

C. C. MARTIN,  
Chief Engineer and Superintendent.

Several statements in the above appear to be contradictory. The breaks occurred in parts entirely out of sight and were not known until enough had been made to separate the sections so they could be seen. How can this statement be reconciled with the other "that the rods on all of the other cables are sound?" If it was impossible to find out about the broken rods until they

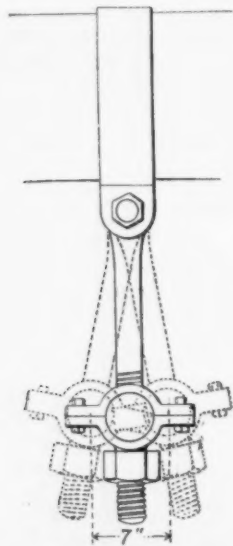


Fig. 2.—Sketch Showing Movement of Suspender Rod.



Fig. 3.—One of the Removed Suspender Rods.

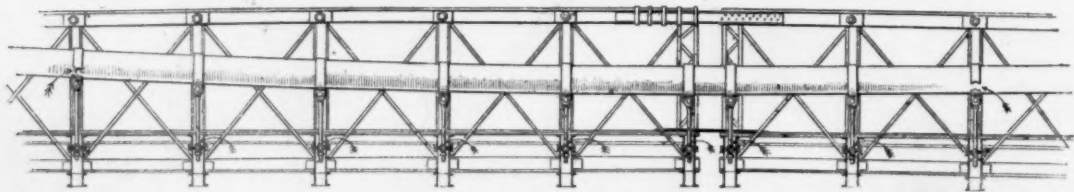


Fig. 4.—Side Elevation at Center of Bridge, Showing Location of Breaks.

#### THE BROOKLYN BRIDGE ACCIDENT.

the suspender rods are attached, and does not occur in the cable to which the upper ends of these rods are attached, the result is that the lower ends of the rods move backward and forward as the truss expands or contracts.

In order to provide for this a steel trunnion block was introduced into this connection, which permitted a rolling motion without producing cross strains in the rods. These cast steel trunnion blocks are  $5\frac{1}{4}$  inches deep, the rods passing through them freely, and a nut was placed beneath the block to hold the whole in place. Examination shows that all of the broken rods are broken in these blocks, and entirely out of sight; until enough of them had been broken to allow the cable to lift or the floor to settle sufficiently for the broken ends of the rods to come into sight, nothing would be known of the break.

An examination of the fracture of two of the rods indicates unmistakably that they have been broken for a long time. All of the remaining suspender rods on this cable and on the other three cables have been carefully re-examined, and they are in perfect order. As to the broken cable bands, there are 1700 of them around the cables on the bridge, and it is quite possible, notwithstanding the rigid inspection to which they were subjected before they were put in place, that occasionally a defective band may have been used. Constant inspection since the bridge has been in use has detected a few, and these have been replaced without in any way affecting the strength of the bridge or impeding traffic.

had broken, is it well to be too sure of the other rods of precisely the same construction?

The report further states that the breaking of one rod threw additional load upon the two adjoining ones. These two gave way and a still greater stress was put upon the fourth and fifth rods. But since nine rods broke the extra strain upon the two adjoining ones must have been tremendous and just why the snapping did not continue is a wonder. The plea that some of the suspenders and their fittings might have been defective is plausible, but it is not reasonable to suppose that nine defective pieces could have been grouped next to each other and at precisely the spot where they would be subjected to the most severe duty.

That the bridge is sustaining a load—both dead and alive—far in excess of any for which it was designed is a fact beyond dispute. This load is made up of rails, trolley gear, pipe lines, electric wires and cables, trolley cars and their passengers—the whole amounting to hundreds of tons.

#### Sag at the Center of Bridge.

There is a decided sag in the center of the main span of the bridge. The top chord of each truss has a perceptible drop as it approaches the joint. This is shown by the half-tone engraving here presented. This drop is

present in neither of the shore spans, nor is there any irregularity anywhere else in the structure.

#### Bridge Examiner Appointed.

District Attorney Philbin has appointed Edwin Duryea of Brooklyn to examine the bridge, and report its exact condition. Mr. Duryea has been connected with the engineering department of the New East River Bridge.

### Midsummer Pig Iron Statistics.

The American Iron and Steel Association has just published the statistics of the production of pig iron for the first half of the current year.

The following table shows the production by States, the output having exceeded that of the first half of 1900 by a little and having been 1,527,940 tons in excess of the second half of 1900:

#### Total Production of Pig Iron.

| States.              | Production.—Gross ton of 2,240 pounds.<br>(Includes spiegeleisen.) |                         |                        |
|----------------------|--|-------------------------|------------------------|
|                      | First half<br>of 1900.   | Second half<br>of 1900. | First half<br>of 1901. |
| Massachusetts .....  | 1,554  | 1,756                   | 1,952                  |
| Connecticut .....    | 5,179  | 5,054                   | 4,621                  |
| New York .....       | 193,460  | 99,367                  | 109,317                |
| New Jersey .....     | 101,074  | 69,188                  | 65,524                 |
| Pennsylvania .....   | 3,493,842  | 2,872,093               | 3,549,148              |
| Maryland .....       | 153,668  | 136,406                 | 157,628                |
| Virginia .....       | 272,749  | 217,868                 | 217,819                |
| North Carolina ..... | 14,171   | 14,813                  | 15,547                 |
| Georgia .....        | 605,977  | 578,360                 | 627,214                |
| Alabama .....        | 7,662  | 2,488                   | 1,320                  |
| Texas .....          | 90,358   | 76,400                  | 74,630                 |
| West Virginia .....  | 45,757   | 25,805                  | 26,361                 |
| Kentucky .....       | 187,694  | 174,496                 | 178,244                |
| Tennessee .....      | 1,464,208  | 1,006,703               | 1,598,850              |
| Ohio .....           | 712,473  | 650,910                 | 739,409                |
| Illinois .....       | 79,262   | 84,450                  | 93,981                 |
| Michigan .....       | 128,547  | 56,247                  | 124,273                |
| Wisconsin .....      | 84,935   | 74,269                  | 88,775                 |
| Minnesota .....      |  |                         |                        |
| Missouri .....       |  |                         |                        |
| Colorado .....       |  |                         |                        |
| Totals .....         | 7,642,569  | 6,146,673               | 7,674,613              |

According to fuel used the production was:

#### Total Production According to Fuel Used.

|                         | First half<br>of 1900. | Second half<br>of 1900. | First half<br>of 1901. |
|-------------------------|------------------------|-------------------------|------------------------|
| Anthracite .....        | 990,667                | 686,381                 | 865,024                |
| Charcoal .....          | 167,146                | 172,728                 | 194,231                |
| Bituminous .....        | 6,459,714              | 5,267,998               | 6,597,379              |
| Charcoal and coke ..... | 25,042                 | 19,566                  | 17,979                 |
| Totals .....            | 7,642,569              | 6,146,673               | 7,674,613              |

The production of charcoal iron was as follows:

#### Production of Charcoal Pig Iron.

|                     | First half<br>of 1900. | Second half<br>of 1900. | First half<br>of 1901. |
|---------------------|------------------------|-------------------------|------------------------|
| Massachusetts ..... | 1,534                  | 1,756                   | 1,952                  |
| Connecticut .....   | 5,179                  | 5,054                   | 4,621                  |
| New York .....      | 3,090                  | 4,830                   | 4,400                  |
| Pennsylvania .....  | 1,621                  | 1,801                   | 2,265                  |
| Maryland .....      | 2,794                  | 3,181                   | 2,787                  |
| Virginia .....      | 9,903                  | 12,976                  | 15,547                 |
| Georgia .....       | 30,030                 | 27,602                  | 25,008                 |
| Alabama .....       | 7,662                  | 2,488                   | 1,320                  |
| Texas .....         | 1,332                  | 1,787                   | 1,215                  |
| Kentucky .....      | 2,342                  | 5,395                   | 4,588                  |
| Tennessee .....     |                        |                         |                        |
| Ohio .....          |                        |                         |                        |
| Michigan .....      |                        |                         |                        |
| Wisconsin .....     | 101,639                | 105,858                 | 130,528                |
| Missouri .....      |                        |                         |                        |
| Totals .....        | 167,146                | 172,728                 | 194,231                |

The production of pig iron in the Pennsylvania and Ohio districts was:

#### Production of All Kinds of Pig Iron in Pennsylvania and Ohio by Districts.

| Districts.                   | Production.—Gross ton of 2,240 pounds.<br>(Including spiegeleisen.) |                         |                        |
|------------------------------|---|-------------------------|------------------------|
|                              | First half<br>of 1900.  | Second half<br>of 1900. | First half<br>of 1901. |
| Pennsylvania:                |   |                         |                        |
| Lehigh Valley .....          | 307,631   | 237,567                 | 265,685                |
| Schuylkill Valley .....      | 232,834   | 208,284                 | 247,592                |
| Up. Susquehanna Valley ..... | 81,617  | 59,506                  | 54,606                 |
| L. Susquehanna Valley .....  | 332,712   | 205,497                 | 320,980                |
| Juniata Valley .....         | 75,203  | 51,221                  | 78,116                 |
| Allegheny County .....       | 1,627,093   | 1,491,668               | 1,705,748              |
| Shenandoah Valley .....      | 485,999   | 314,215                 | 472,591                |
| Miscel. bituminous .....     | 349,132   | 302,334                 | 392,565                |
| Charcoal .....               | 1,621   | 1,801                   | 2,265                  |
| Ohio:                        |   |                         |                        |
| Mahoning Valley .....        | 541,369   | 460,993                 | 702,632                |
| Hocking Valley .....         | 24,888  | 25,613                  | 20,660                 |
| Lake counties .....          | 350,793   | 146,791                 | 361,242                |
| Miscel. bituminous .....     | 390,628   | 277,183                 | 382,484                |
| Hanging Rock bitum. ....     | 154,188   | 90,728                  | 127,244                |
| Hanging Rock charcoal ..     | 2,342   | 5,395                   | 4,588                  |

The most striking fact is the notable increase in the Mahoning Valley, partly due to the blowing in of the Ohio Steel Company furnaces at Youngstown.

The production of Bessemer pig was as follows:

#### Production of Bessemer Pig Iron.

|   | First half<br>of 1900. | Second half<br>of 1900. | First half<br>of 1901. |
|---|------------------------|-------------------------|------------------------|
| New York and New Jersey .....           | 27,160                 | 13,140                  | 12,253                 |
| Pennsylvania:                           |                        |                         |                        |
| Lehigh Valley .....                     | 54,833                 | 45,944                  | 58,211                 |
| Schuylkill Valley .....                 | 41,039                 | 42,165                  | 41,140                 |
| Up. Susquehanna Valley .....            | 78,929                 | 58,836                  | 54,606                 |
| L. Susquehanna Valley .....             | 266,327                | 146,119                 | 262,894                |
| Allegheny County .....                  | 1,305,801              | 1,166,872               | 1,360,338              |
| Shenango Valley .....                   | 377,141                | 255,873                 | 360,374                |
| Miscel. bituminous .....                | 215,243                | 187,275                 | 234,920                |
| Maryland .....                          | 134,632                | 126,056                 | 154,082                |
| W. Virginia and N. Carolina ..          | 92,204                 | 77,598                  | 74,630                 |
| Kentucky and Tennessee .....            | 13,430                 |                         |                        |
| Ohio:                                   |                        |                         |                        |
| Mahoning Valley .....                   | 391,090                | 326,153                 | 495,708                |
| Lake counties .....                     | 333,977                | 119,347                 | 340,001                |
| Hanging Rock bitum. ....                | 55,601                 | 15,184                  | 25,687                 |
| Miscel. bituminous .....                | 390,628                | 266,683                 | 369,151                |
| Illinois .....                          | 600,999                | 577,242                 | 650,614                |
| Michigan, Wisconsin and Minnesota ..... | 21,429                 | 356                     | 25,569                 |
| Missouri and Colorado .....             | 60,928                 | 57,218                  | 62,009                 |
| Totals .....                            | 4,461,391              | 3,482,061               | 4,582,187              |

The output of basic pig was as follows:

#### Production of Basic Pig Iron.

|   | First half<br>of 1900. | Second half<br>of 1900. | First half<br>of 1901. |
|---|------------------------|-------------------------|------------------------|
| New York and New Jersey .....                   | 2,375                  | 2,554                   | 6,235                  |
| Pennsylvania:                                   |                        |                         |                        |
| Allegheny County .....                          | 211,508                | 235,035                 | 237,593                |
| Other counties .....                            | 189,992                | 154,073                 | 198,471                |
| Maryland, Virginia, Tennessee and Alabama ..... | 105,211                | 74,506                  | 134,598                |
| Ohio, Missouri and Wisconsin .....              | 72,782                 | 24,340                  | 68,208                 |
| Totals .....                                    | 581,868                | 490,508                 | 645,105                |

There has been a further gain during the period under review.

The production of spiegeleisen and ferromanganese in the first half of 1901 was 135,920 gross tons, all made in New Jersey, Pennsylvania, Alabama, Illinois and Colorado, against 148,102 tons in the first half of 1900 and 107,875 tons in the second half.

**Unsold Stocks.**—Our statistics of unsold stocks do not include pig iron sold and not removed from the furnace bank, or pig iron in the hands of creditors, or pig iron manufactured by rolling mill owners for their own use, or pig iron in the hands of consumers. The stocks which were unsold in the hands of manufacturers or their agents on June 30, 1901, amounted to 372,560 tons, against 442,370 tons on December 31, 1900, and 338,053 tons on June 30, 1900.

Included in the stocks of unsold pig iron on hand on June 30, 1901, were 8831 tons in the yards of the American Pig Iron Storage Warrant Company which were yet under the control of the makers, the part in these yards not under their control amounting to 1569 tons, which latter quantity, added to the 372,560 tons above mentioned, makes a total of 374,129 tons which were on the market at that date. The total stocks in the above named warrant yards on June 30, 1901, amounted to 10,400 tons, against 16,400 tons on December 31, 1900.

It is understood that negotiations have been going on for the consolidation of the rubber manufacturing business of the United States on a plan similar to that of the United States Steel Corporation. The concern will be composed of the larger crude rubber companies and the leading manufacturers of rubber goods. Charles R. Flint and other representatives of heavy interests in the rubber trade are said to be behind the deal.

One of the roads in the anthracite region recently took up 2000 tons of steel rails marked "Cammell & Co., Sheffield, 1871." Some of them were in an excellent condition. They had been down on an incline plane over which there was a heavy traffic.

The American Spiral Pipe Company, manufacturers of spiral riveted pipe, will erect a building for their special purposes on Paulina street, south of Blue Island avenue, Chicago. It will cover a ground space of 80 x 150 feet.

The Amalgamated Association strike is affecting the railroads materially. One of the principal roads running from Chicago to the East is reported to have had contracts canceled for more than 1000 carloads of freight as a direct result of the strike.

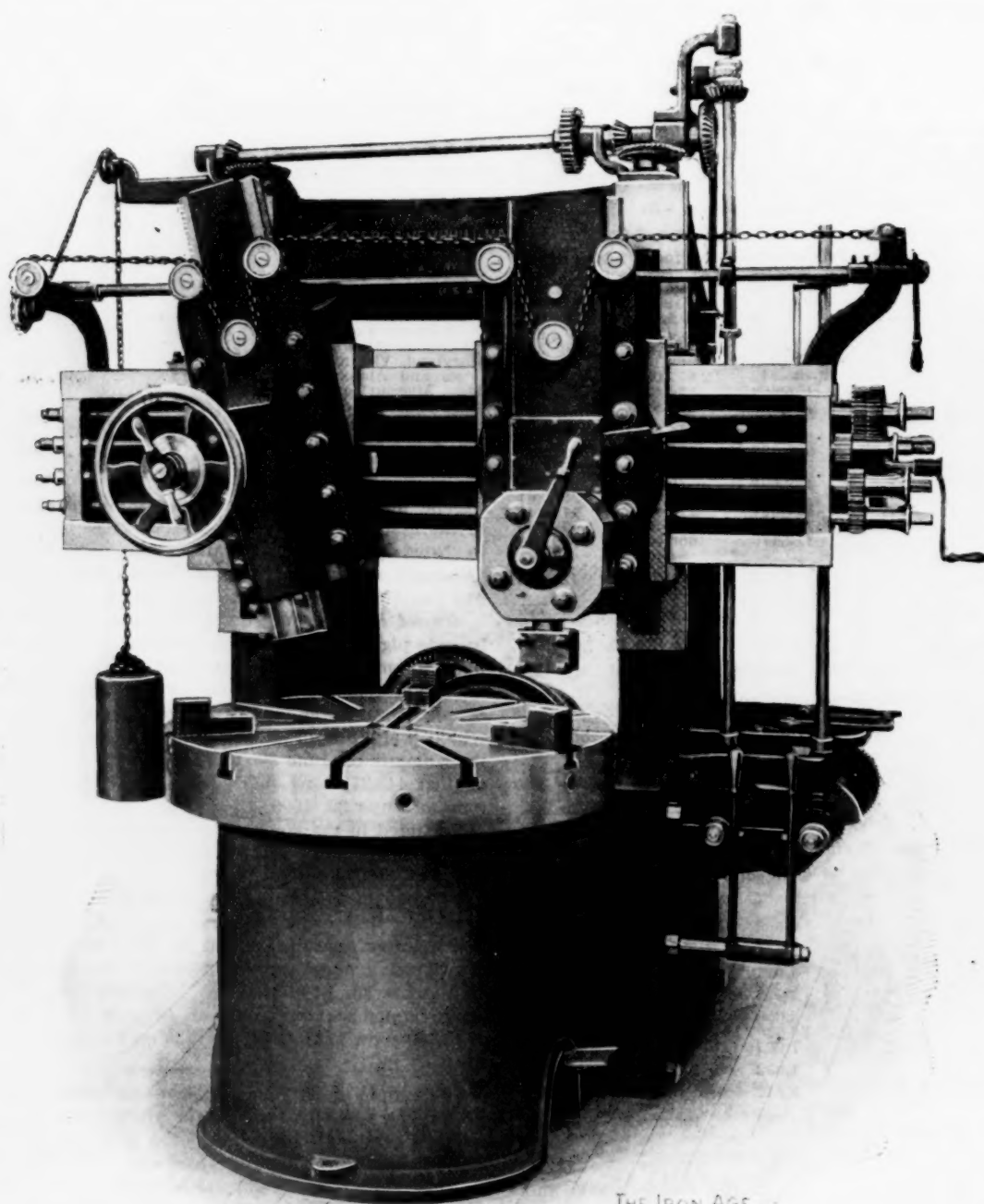


## Machinery at the Pan-American Exposition.—III.

### Rogers & Hemphill Machine Company.

Two machines of admirable design are shown by the Rogers & Hemphill Machine Company of Alfred, N. Y., for whom the Prentiss Tool & Supply Company, 115 Liberty street, New York, are the selling agents. The

table is very large and heavy and contains a three-jaw universal chuck of 38 inches diametrical capacity, and fits, in conjunction with the base, over the ring gear and pinion in such a way that it is almost impossible for chips to get into the gearing. The webbed side frames extend to the floor, and the manner in which they are secured to the base insures great rigidity. The rail is raised by power, the lift screws being built into the housings and driven by gears in direct connection with



THE IRON AGE

*Double Head Vertical Boring and Turning Mill.*

### MACHINERY AT THE PAN-AMERICAN EXPOSITION.

first mill illustrated will take work up to 44 inches in diameter. It is provided with one regular head and one head carrying a swivel turret stake fitted with a turret having four holes  $2\frac{1}{2}$  inches in diameter for the boring bar, tool holder, &c. The turret is held and securely locked in position by a clamp and lock levers. While each head is entirely independent of the other in operation, the feed mechanism is so arranged that both heads may be run in unison. The feed rods and screws run the entire length of the cross rail, thereby allowing either head to be carried to the center for boring. The

one of the regular feed shafts. The automatic trip for the cross and vertical feeds is adjustable to any desired position. There is a brake, operated by the foot lever shown, for stopping the table at the will of the operator. All of the levers are placed within convenient reach. The feed gearing is all positive, the changes being obtained by means of pull pins. The regular head has nine changes of feed and the other 21, the changes being so arranged that any standard thread from 2 to 12, including  $11\frac{1}{2}$ , may be cut. The table has 20 changes of speed. The drive cone and back gears are placed be-



between the housings, the result being a compact, self-contained machine, requiring comparatively little floor space.

#### Single Head Mill.

The second engraving is of a 31-inch single head swivel turret mill designed to meet the requirements for a simple machine occupying little floor space, and capable of doing accurate work. The turret carries four tools. The swivel is adjustable to any angle, and is graduated. A three-jaw universal chuck is built into the table, and both the table gear and pinion are accurately planed. Both vertical and horizontal feeds are provided with an adjustable automatic or hand trip. The cone has four steps. There are 16 changes of

bitterly opposed the importation of the colored labor and threatened violence. The company concluded that it was wise not to cause trouble on this account, and abandoned the attempt. Other large employers of labor in Chicago and its vicinity would have been inclined to follow the example of the company if it had proved a successful experiment. The condition in the Northwest promises to become worse in this respect, as a strong demand now exists for harvest hands in the wheat fields of Minnesota and the Dakotas.

**The Iron and Steel Institute.**—At the autumn meeting of the Iron and Steel Institute at Glasgow, September 3, 4, 5 and 6, the following papers are to be pre-

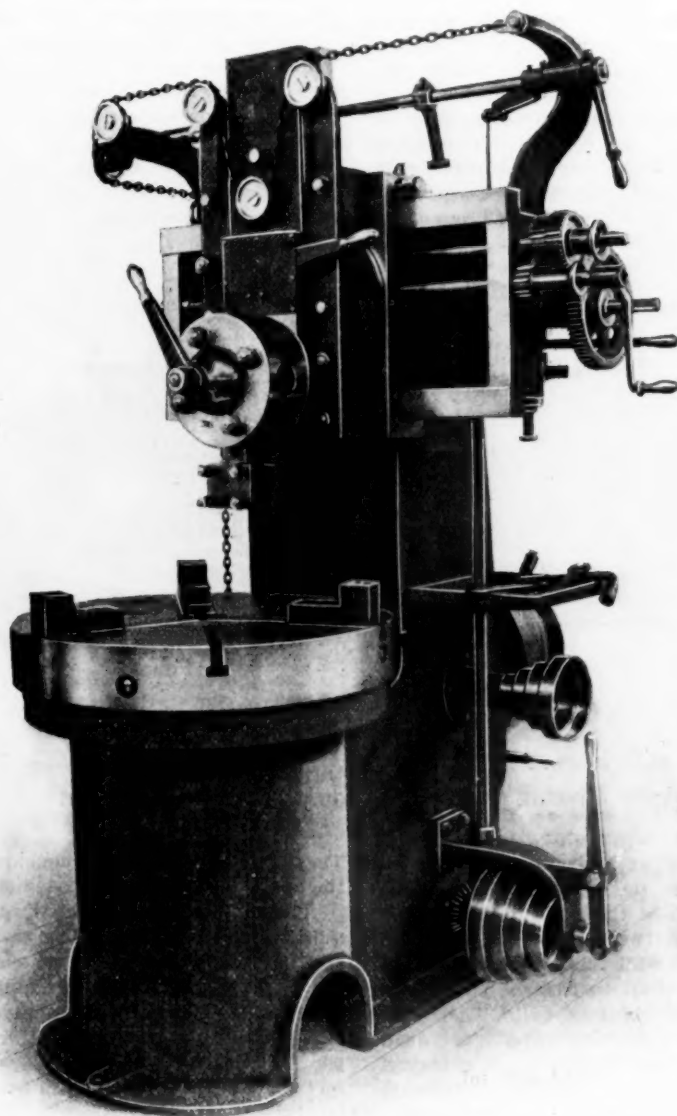


Fig. 2.—Single Head Swivel Turret Mill.

#### MACHINERY AT THE PAN-AMERICAN EXPOSITION.

speed to the table, and eight feed changes. The tool will take 14 inches under the rail.

**The Scarcity of Labor.**—A scarcity of ordinary laborers prevails throughout the Northwest. Manufacturers find great difficulty in securing a sufficient supply of this class of workmen for the operation of factories. In some instances the scarcity has proved so great that efforts have been made to engage laborers in distant parts of the country. Last week trouble was threatened at Melrose Park, a Chicago suburb, by the divulgence of the plans of the Latrobe Steel & Coupler Company, who had arranged for a force of negro laborers from Alabama. The white citizens of the locality

sented: "On the Iron and Steel Industries of the West of Scotland," by a committee of the West of Scotland Iron and Steel Institute; "Report on the Nomenclature of Metallography," by a committee of the Iron and Steel Institute; "On the Presence of Calcium in High Grade Ferrosilicon," by G. Watson Gray, Liverpool; "On the Spectra of Flames at Different Periods During the Basic Bessemer Blow," by Prof. W. N. Hartley, Dublin, and Hugh Ramage, Cambridge; "On Iron and Copper Alloys," by J. E. Stead, Middlesbrough; "On the Effect of Copper in Steels for Wire Manufacture," by J. E. Stead and F. H. Wigham, Middlesbrough; "On the Correct Treatment of Steel," by C. H. Ridsdale, Middlesbrough; "On the Profitable Utilization of Power from Blast Fur-

nace Gas," by B. H. Thwaite, London; "On Brinell's Method of Determining Hardness and Other Properties of Iron and Steel," by Axel Wahlberg, Stockholm; "On the Variation of Carbon and Phosphorus in Steel Ingots," by Axel Wahlberg, Stockholm; "On Internal Strains in Iron and Their Bearing Upon Fracture," by Arthur Wingham, F.I.C., Torquay; "On a Mechanical Gas Producer," by Benjamin Talbot, Leeds.

### The Buffalo Forge Company's Double Generating Set.

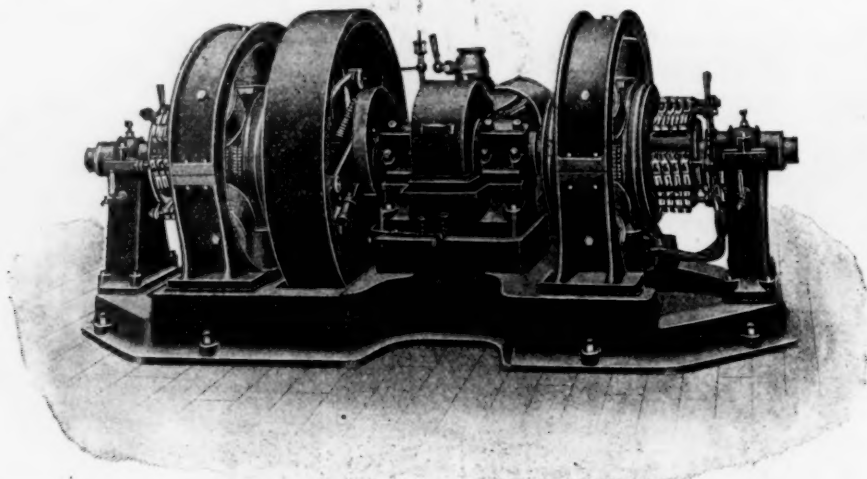
The wide extension of the use of the direct connected dynamo and engine, with the coincident development and perfecting of the modern high speed engine, has also witnessed the adaptation of these machines for many special requirements. For instance, in situations where the synchronous rotation of two dynamos is desirable, as in the three-wire system of to-day, the utility of employing a single engine to drive two direct connected generators will be apparent. In the accompanying engraving is shown a generating set comprising a Buffalo forge horizontal center crank engine and two direct connected

may be arranged for direct connection to one or two generators of any standard make.

### The Future of the Middlesbrough District.

A correspondent of the *Iron and Coal Trades Review* comments as follows on the communication from A. F. Pease on the future of the Middlesbrough district:

There is no other large iron producing district in Europe so advantageously situated as Cleveland. The Cleveland ore and the Durham coal are within easy distance of the Cleveland blast furnaces. The situation of the latter on the banks of a fine river gives it a preponderating advantage in the importation of foreign ores. Our competitors, the large iron producing districts of Germany, Belgium and the northeast of France, who import considerable quantities of foreign ores (chiefly the rich magnetic Swedish ores), have to carry these ores a considerable distance from the coast, while Cleveland, with a few exceptions, discharges ore steamers close to the furnaces. In order, however, to obtain foreign ores at lowest possible prices, our blast furnace establishments situated on the banks of the



THE BUFFALO FORGE COMPANY'S DOUBLE GENERATING SET.

generators. The two generators and engine are bolted to the same cast iron sub-base, the engine bed being near the center of the sub-base, and the field frames of the dynamos on either side. The two ends of the shaft are carried in outboard bearings, which are likewise secured to the sub-base. The main shaft carries the two armatures and the large governor wheel as well. The cylinders of this engine are provided with an efficient dead air insulating space and a polished sheet metal covering. The piston is firm and light, combining maximum strength with minimum cylinder wear. The crank shaft is a single forging of open hearth steel, to which the counterbalancing disks are so fastened as to reduce the vibrating and shaking forces to a minimum. The connecting rod is of forged steel, and has a cross head provided with a bronze box, which may be adjusted by means of a wedge and two screws. The crank end is of the locomotive strap type, with a wedge adjustment, and the boxes are lined with babbitt metal. The valve motion is obtained from an eccentric which is controlled by a shaft governor. This governor is especially adapted to the kind of machine under consideration, because of the great regularity of speed required for electric lighting service. It is light and effective and possesses two means of adjustment.

In the design of this engine the essential feature of lubrication has been most carefully considered. The crank disk and connecting rod are inclosed and run in oil, while the wrist pin bearing is provided with a cup which is supplied with oil from the same source. The outboard bearings are of the Buffalo adjustable type, ring oiling and self aligning. The engine is constructed by the Buffalo Forge Company of Buffalo, N. Y., and

Tees will have to make considerable improvements in the mode of discharging steamers.

The tendency in the ore trade is for large steamers which can be sailed at less cost than the smaller and older boats. There are now steamers carrying ore from the Swedish ports to Rotterdam and Antwerp of from 6000 to 7500 tons. These steamers are loaded and discharged, always afloat, at the rate of about 2000 tons per day after arrival. They draw 21 feet 3 inches to 21 feet 9 inches water, and return to the loading port in ballast.

There is at present only one deep water wharf on the River Tees where these large steamers could discharge. None could pass through either the Middlesbrough or West Hartlepool dock entrances. The Tees Conservancy Commissioners have done splendid work in deepening the channel of the river, so that steamers of very large size can come up the Tees; but what is the use of all this so long as large boats cannot approach the wharves in the river? The dock extension is now progressing well, and when finished the Middlesbrough dock will have an entrance 80 feet wide to admit steamers of the largest size. This will remedy one defect; but what is wanted in order to meet the increasing importation of ore are deep water wharves at all the iron works, more extent of quay room and adequate crane installations to expedite discharging. At the present time, whenever there is some activity in ore deliveries, the delays in discharging are considerable, steamers lying off the wharves for days waiting their turn to get into a discharge berth. No wonder ship owners will not go to the Tees as long as they can find better dispatch elsewhere. In fact, at some of our wharves they work along in the way they

did 10 and 20 years ago, when the ore shipping trade was of no great importance.

The importations of foreign iron ores in the district between Tees and Tyne amount in round figures to 2,400,000 tons per annum. Of this 1,550,773 tons come to Middlesbrough and Stockton. This is a large quantity to handle, and it will be increased steadily.

### Tin Mining in the Malay Peninsula.

A special mining commission of the London *Economist* reports as follows:

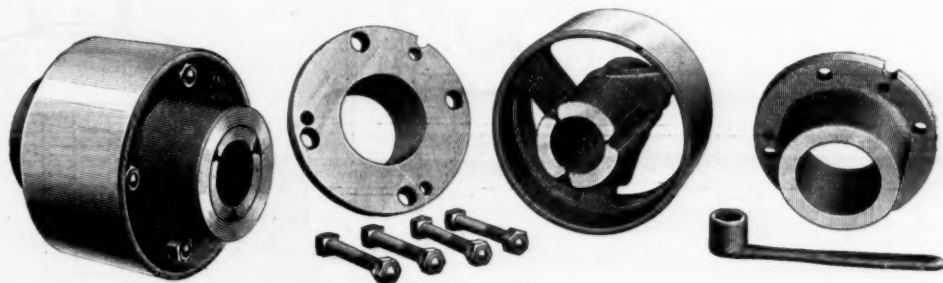
The lower half of the Malay Peninsula consists of the States of Perak, Selangor, Pahang, Negri Sembilan and Johore. The first four are known as the Federated Malay States—which are under the protection of Great Britain—and Johore will probably enter the Federation sooner or later. To the north of these are numerous other Malay States, quite unexplored as yet. These are nominally under Siamese influence, and are closed to European exploitation. The Federated Malay States, especially Perak and Selangor, contain by far the largest and richest tin mining fields known, and as they supply at present about four-sevenths of the world's output of tin their importance from the mining point of view can be easily imagined. These great tin deposits stretch from the north, through the independent Malay States, into Siam, and the province of Yunnan, in China,

On every side, too, you see dense tropical forests. One glance will tell you that, as this land is cleared and prospected, thousands of acres of alluvial tin carrying areas will be exposed, the existence of which is not now known. But the Government is very wisely putting a stop to the habit of taking up only the richest areas. The poorer lands must be worked out first, especially with the present high price for tin, and in days to come the output can be regulated and the revenue assured.

Practically the whole of the tin areas are owned and worked by Chinese, and some of the wealthiest proprietors now estimate their fortunes in millions of dollars. Europeans have found, by costly experience, that the Chinese coolie, in tin mining, will give a fair day's work only to a Chinese master, and unless they can introduce hydraulic sluicing profitably their share in the tin mining industry will be an insignificant one.

### The Davis Compression Coupling.

The compression coupling designed by the W. P. Davis Machine Company of Rochester, N. Y., is here shown assembled and with the parts separated. It consists of a rim having three arms set at an angle, which are attached to the hub. After having been bored, the hub is cut longitudinally into three pieces, each being supported by an arm. The outside of the hub is turned



THE DAVIS COMPRESSION COUPLING.

and south into Sumatra, Banca, Billiton and other of the Dutch Indies.

A rough estimate of the world's present yearly supply of tin may be stated as follows:

|  | Per annum.<br>Tons. |
|--|---------------------|
| Federated Malay States.....                    | 45,000              |
| Independent Malay States, Siam and Yunnan..... | 4,000               |
| Dutch Indies.....                              | 15,000              |
| Australia and Tasmania.....                    | 3,000               |
| Bolivia and Peru.....                          | 4,000               |
| Cornwall .....                                 | 4,000               |
| Total.....                                     | 75,000              |

The question naturally arises, Is the output of tin going to increase? Will not the present high price before long have the effect of bringing many more producers into the market?

But tin is a metal which, relatively to copper, lead, silver and gold, is found in few countries, and I am inclined to think that the output, except in the Malay Peninsula itself, will not increase to any appreciable extent. In the Federated Malay States I can see no sign of waning in production, and when they are worked out, many years hence, the at present unexplored States in the north of the peninsula will doubtless continue to supply the world.

In the Federated States many of the richest patches of the alluvial tin bearing wash have already been worked out; but the lower grade areas, which now, owing to the higher price for tin, are as highly profitable to work as the richer ones used to be, appear to be of almost unlimited extent.

Every here and there you come upon one of these mines. From out of the big shallow holes thousands of Chinese coolies pour, carrying on their heads baskets of the tin bearing gravel, which they empty into the sluices, and as the endless stream passes and repasses, one's belief in the permanence of this industry is crystallized.

tapering and compression flanges are bored tapering. When these flanges are put on the hub and drawn together by bolts, as shown, there is a compression that brings the shafts into perfect alignment.

### Battle Ship "Maine" Launched.

The new battle ship "Maine" was successfully launched on Saturday from the yards of the William Cramp Ship & Engine Building Company at Philadelphia. The "Maine" is 56 per cent. finished. Her keel was laid in April, 1899, and she is to be ready for transfer to the Government in 18 months' or two years' time, depending upon the delivery of her armor plates. The "Maine" is a sister ship to the "Ohio," recently launched at the Union Iron Works, San Francisco, and of the "Missouri," building at Newport News. She is 388 feet long on the water line, 72 feet 2½ inches extreme beam, 23 feet deep and will have a displacement of 12,230 tons. The main battery of the ship will consist of four 12-inch and sixteen 6-inch guns. Besides this, she will carry eight 14-pounders, eight 3-pounders and eight 1-pounders, and machine guns. She will also be supplied with two submerged torpedo tubes. The "Maine" will be required to maintain a speed of 18 knots an hour. The contract price of the hull and machinery alone is \$2,899,000. Her complement is 35 officers and 511 men.

The report of James Lewis & Son of Liverpool makes the statement that 1000 tons of Chili bars are being shipped from Liverpool to New York, and that about 200 tons of copper have gone to Baltimore. It is reported that the Amalgamated Copper Company have been supporting the London market lately by buying "Standard" copper.



The Practical Application of Superheated Steam.\*

BY GEO. A. HUTCHINSON, ANACONDA, MONT.

The very general use of superheated steam throughout Europe, and particularly in France and Germany, has interested the writer for some time past, the more so because of the remarkable economy attained, and because of the general skepticism with which any allusion to its use is met in this country.

To emphasize the fact that its employment has passed far beyond the theoretical stage, the following table has been prepared showing the horse-power, on a basis of 10 square feet of heating surface, of boilers in electrical plants in certain German cities, all of which boilers have been equipped with superheaters by a single builder:

|                                       | Boiler<br>horse-power. |
|---------------------------------------|------------------------|
| Munich .....                          | 1,610                  |
| Munich, Central Station .....         | 750                    |
| Berlin General Electric Company ..... | 560                    |
| Berlin General Electric Company ..... | 540                    |
| Berlin General Electric Company ..... | 2,600                  |
| Berlin General Electric Company ..... | 2,600                  |
| Brühl .....                           | 775                    |
| Essen .....                           | 1,610                  |
| Mannheim .....                        | 1,610                  |
| Frankfort .....                       | 480                    |
| Breslau .....                         | 2,400                  |

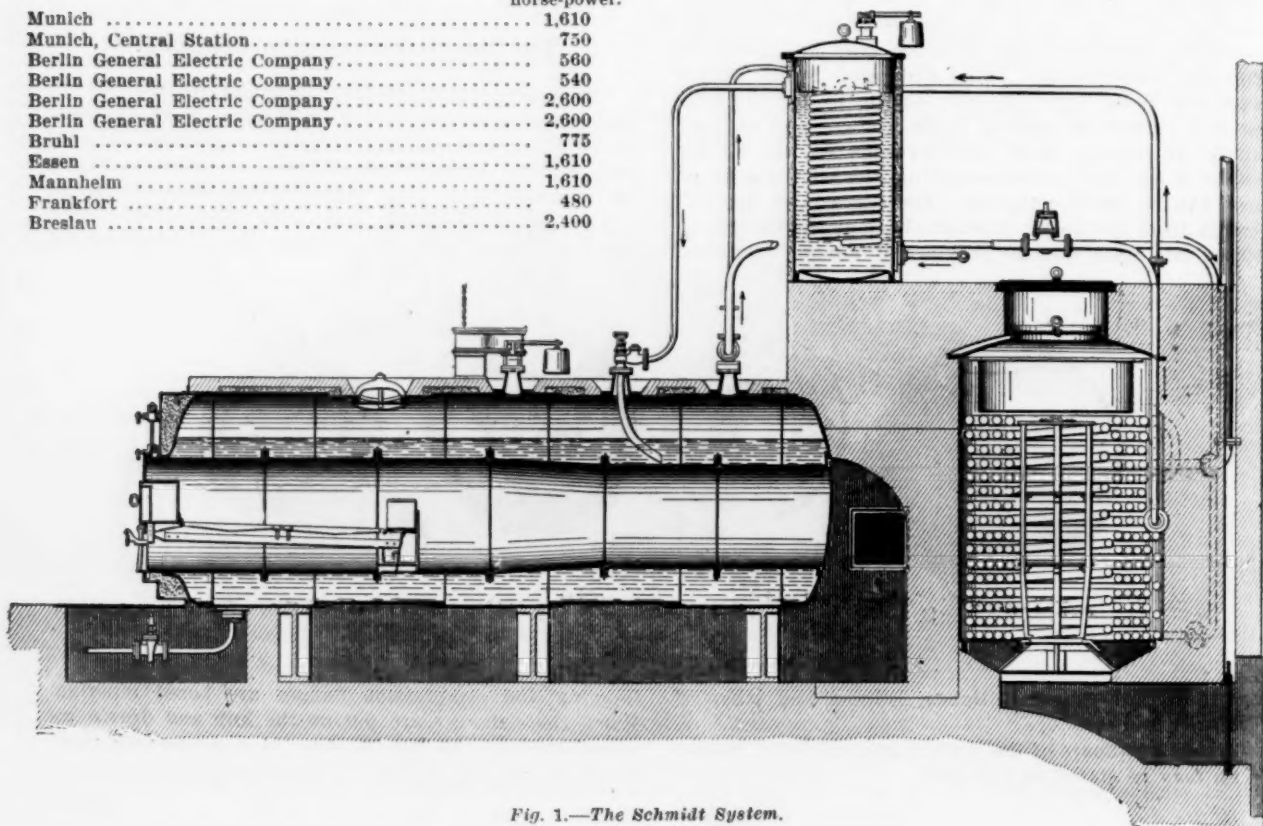


Fig. 1.—The Schmidt System.

PRACTICAL APPLICATION OF SUPERHEATED STEAM.

These figures seem very small when we think of the large electrical plants with which we are familiar in this country; but the total electrical station capacity available for all purposes in Germany, little more than a year ago, was only 224,000 kw., as against 2,000,000 kw. for the United States.

As superheated steam is more nearly in the condition of a perfect gas, its specific heat is low, and the superheat is soon lost during expansion. To illustrate, the specific heat at constant pressure of saturated steam is given for the following absolute pressures:†

|   |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|
| Pressure in pounds per square inch..... | 5     | 50    | 100   | 200   | 300   |
| Temperature, t° F.....                  | 162.3 | 280.9 | 327.6 | 381.7 | 417.4 |
| Specific heat.....                      | 1.607 | 1.237 | 1.122 | 1.001 | 0.931 |

For superheated steam the specific heat at constant pressure is about 0.4805, and for air it is 0.2375.

Advantage of Superheated Steam.

There is always a loss by radiation in the steam pipes and passages, as well as a loss due to clearance, and to the heat absorption by the cylinder walls, which are exposed periodically to the temperature of the exhaust. The advantage of superheated steam may be attributed to three considerations; at high temperature it

behaves like a gas, and a considerable amount of heat may be abstracted before any portion will liquefy; a moderate addition of heat produces a proportionately large increase in volume, and diminishes the weight of steam used per stroke for a given amount of work; it has a greatly reduced thermal conductivity as compared with saturated steam, and therefore the heat absorbed by the cylinder walls becomes a fraction only of what it would otherwise be.

To gain any advantage from the increase of volume the superheating should be carried to the highest degree practicable. Experience has shown that the steam should be heated 125 to 175 degrees above the saturation temperature, in order to prevent condensation before cut off. Even in a nonconducting cylinder it would be impossible, with a high initial pressure, to preserve the steam in a superheated condition till the end of ex-

pansion. With lower pressures an initial temperature of 650 degrees is necessary in order, theoretically even, to permit of superheat in the exhaust. In the engine as actually constructed there are many disturbing elements. From one-quarter to one-half of the so-called dry steam entering the cylinder is condensed during admission, and the most of it goes out of the exhaust port without having performed any work. Under the best conditions an initial condensation of at least 20 per cent. is to be expected. There is frequently, during expansion, a partial re-evaporation of the steam condensed during admission, and tests on multiple expansion engines, driven with saturated steam, and equipped with cylinder jackets and reheating receivers, have sometimes shown the steam to be slightly superheated at release in the low pressure cylinder.

Experience has shown that, with engines of ordinary design, using superheated steam, a temperature at the throttle of 475 degrees F. should not be exceeded. How far the superheating can be safely carried with a given engine can be determined by experiment only, as it depends largely upon the construction. It often happens that a much lower temperature than 475 degrees is found advisable, but even then a considerable saving may be made in the operating expense. If the temperature becomes much higher operation may become impossible on account of the difficulty in lubricating the working

\*Abstract of paper presented at the Milwaukee meeting (May, 1901) of the American Society of Mechanical Engineers.  
† "Thermodynamics," Peabody.

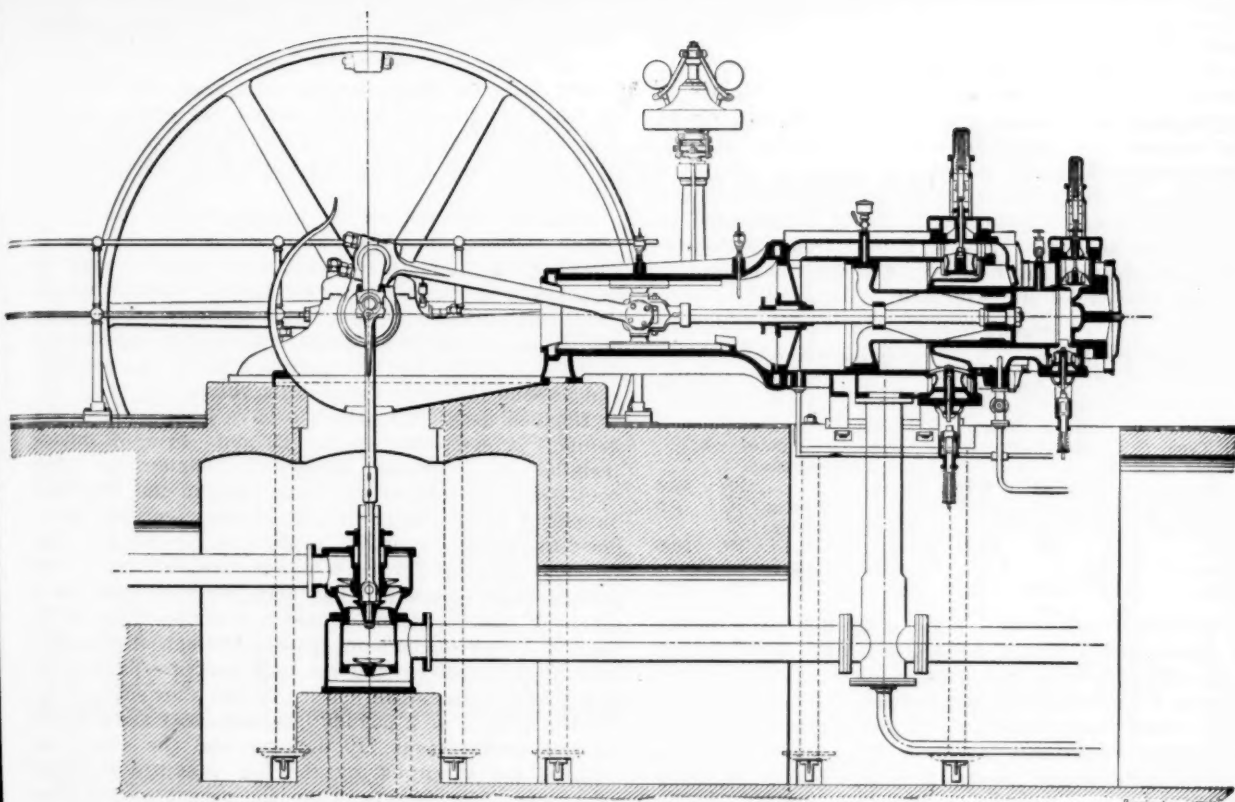


Fig. 2.—The Schmidt Engine.

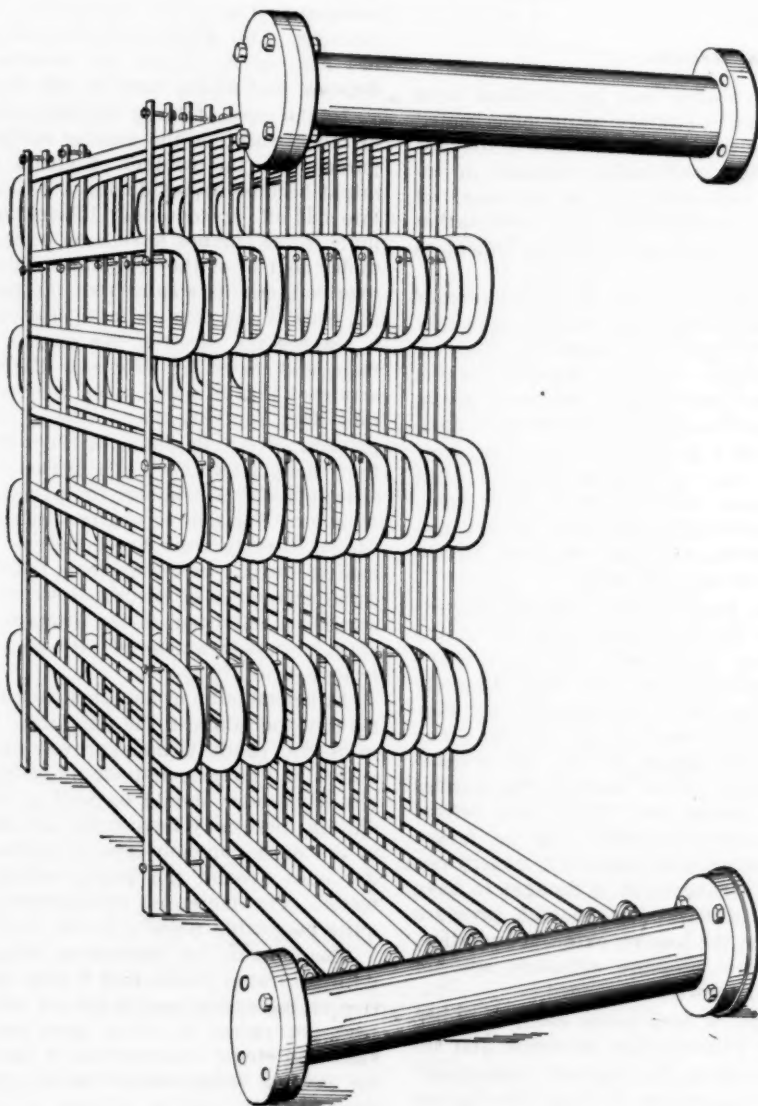


Fig. 3.—The Hering Superheater.

PRACTICAL APPLICATION OF SUPERHEATED STEAM.

parts properly, or the expenditure for lubricants may be so great as to neutralize any advantage derived otherwise. The lubrication difficulty prevents the use of unbalanced slide valves with very high temperatures, and compels the application of poppet valves, or completely balanced piston valves.

Some notion of the relative economy of different types of engines working with highly superheated or with saturated steam may be gained from the following table, given by Herr Jacobi, in which the respective thermal efficiencies are expressed:

| Engines Working with  |              |                           |                           |              |                           |
|-----------------------|--------------|---------------------------|---------------------------|--------------|---------------------------|
| Saturated Steam.      |              |                           | Highly Superheated Steam. |              |                           |
| Type.                 | Horse-power. | Thermal efficiency. P. c. | Type.                     | Horse-power. | Thermal efficiency. P. c. |
| Simple noncondensing  | 30           | 6.7                       | Simple noncondensing      | 30           | 12.5                      |
| Simple condensing     | 40           | 9.2                       | Simple condensing         | 40           | 15.5                      |
| Compound condensing   | 150          | 13.3                      | Compound condensing       | 90           | 21.0                      |
| Triple ex. condensing | 400          | 16.5                      | Compound condensing       | 250          | 22.0                      |

Comparative tests to determine the relative economy of saturated and superheated steam have been run on many different types and sizes of engines, with varying degrees of superheat, during the past few years, by various well-known engineers. To refer to even a small percentage would take too much time, and would soon become monotonous. A net gain in economy of 10 to 15 per cent. is a common result, while a saving of 20, 25 and even 30 per cent. is by no means uncommon. Of course, the largest saving is made with the more wasteful types of engines.

#### Best Results.

The most economical results thus far obtained have been secured with compound engines using superheated steam. The use of triple expansion machines is thought by many designers to be inadvisable, because of increased initial expense, increased friction, increased oil consumption, care and complication, and inadaptation to fluctuating loads, to say nothing of jackets, reheaters and space requirements.

A triple expansion engine installed at the factory of Ed. Vaucher & Cie. of Mulhausen was so arranged that it could be operated as a triple, with superheated steam in the high pressure cylinder, or as a compound engine with a reheating receiver, and using superheated steam, therefore, in both cylinders.\* When operated as a compound machine there was a gain of 10.5 per cent. over the steam consumption, and 6 per cent. over the coal consumption, of the engine when operated as a triple, and a reduction in the indicated work from 746.5 horsepower to 727.2 horsepower, although the load carried under both conditions was kept the same.

Tests conducted by R. Doerfel on a vertical triple expansion mill engine, in Zwodau, were reported in the *Zeitschrift des Vereines Deutscher Ingenieure*, December 16, 1899. The cylinder sizes are approximately 23½ inches, 37½ inches and 53 inches diameter, by 35½ inch stroke, the speed 85½ revolutions per minute. The high pressure cylinder has poppet valves, the intermediate and low, four rolling valves each, of the Corliss type, operated by wrist plates, but without any releasing gear. The high pressure cylinder has a jacket which is traversed by the exhaust, and really constitutes the first receiver. This arrangement is thought to have no ill effect on the performance in the high pressure cylinder, and to minimize the loss by external radiation. The intermediate and low pressure cylinders are not jacketed, nor are special receivers provided.

Four tests were made, of four hours each, in April, 1898, with steam of 139 pounds boiler pressure, and superheated from 136 degrees to 153 degrees, corresponding to a temperature at the throttle of about 500 degrees F. The steam consumption was between 10¼ and 11 pounds per horse-power per hour, and the heat consumption 13,572 to 13,866 British thermal units. The

indicated rate of work ranged from 613 to 802 horsepower. After analyzing the results, the inference is drawn that with three-cylinder machines, the influence of the high temperature is limited too closely to the high pressure cylinder. The intermediate cylinder derives some slight benefit, and the low pressure cylinder little or none.

Judging from the results, a large saving can be effected in many old plants using compound engines by superheating the receiver steam, even though it may not be possible to properly lubricate Corliss valves when using superheated steam under high pressure. The superheating could best be effected with highly superheated steam introduced into the heating coils of the receiver, and passing thence to the throttle valve.

Engines using this principle have been built in Bohemia. A compound engine, 29 and 48 x 52 inches, installed in a cotton factory in Schlan, in 1898, was tested in July of that year, and in the following January.\* The engine is underloaded, cutting off at one-tenth stroke, runs 74 revolutions per minute, and develops 500 to 575 horse-power with steam of 100 pounds boiler pressure. The high pressure cylinder is jacketed, and the steam, heated to a temperature of 550 degrees F., or thereabouts, passes through the heating coils of the receiver and the high pressure packet before reaching the steam chest. A test showed that the receiver steam, at 2 pounds pressure, was superheated by this arrangement 110 degrees, and the steam accounted for at cut off by the low pressure indicator card was 11.51 pounds, while the actual consumption of the engine was 11.84 pounds per horse-power per hour. In other words, the device neutralized almost completely the initial condensation in the low pressure cylinder. The steam temperatures were, at the boiler, 594 degrees F., before the receiver heating coils, 540 degrees, and at the throttle, 405 degrees.

In the case of large engines, where the area of the cylinder walls, or the cooling surface, is small as compared with the volume of steam admitted, the walls might become so hot during a period of heavy load and late cut off as to render lubrication difficult. Accordingly, some engines have been built with a special valve under control of the regulator, which, during periods of overload, admits steam from the main pipe to the heating coils of the receiver, and thus cools the steam before it reaches the throttle. An engine installed in Amsterdam, and tested by Professor Ewing, has the valve so arranged that it opens when the receiver pressure rises, that fact implying that a smaller part of the whole expansion is taking place in the high pressure cylinder, that there is less need of superheat there, and that it is advantageous to transfer the excess to the low pressure cylinder. For simple engines saturated steam may be drawn directly from the boiler to mix with the superheated steam. In the extreme position of the regulator, equal quantities of saturated steam and of superheated steam are admitted, in the attempt to keep the packing rings always in a zone of saturated or of slightly superheated steam.

Either metallic or asbestos packing should be used for making the joints in the pipe line. Kieselguhr, a porous infusorial earth, is an approved covering for the pipes, valves and flanges, and should be applied liberally. The steam cylinder should be well protected also, since radiation there may have quite an effect, especially if, as in the more common type of Corliss engines, the cylinder ends around the steam valves are wholly unprotected. The increased temperature near the engine is quite noticeable when it is run with superheated steam.

The demand for condensing water is no greater than with saturated steam, and it may easily be less. A portion of the added heat is turned into work, and if more heat per pound of steam goes out with the exhaust, since the steam consumption is diminished, the demand for cooling water should be no greater, and possibly less.

The installation of a superheater is equivalent to an increase in boiler capacity, and enables intermittent loads, such as are imposed upon hoisting or rolling mill

\*Paper read by A. Bieder to the Aachener Bezirks-Verein Deutscher Ingenieure.

\*Doerfel *Zeits. d. Ver. Deutscher Ing.*, December 9, 1899.





the boilers an independent superheater becomes advisable. The first cost may be greater, but it need not entail a large expense for maintenance, because the furnace can be fired at intervals of several hours, the fire

If the coils are placed directly in the boiler flues, without dampers by means of which they may be protected from the hot gases, while the boiler is being warmed before steam is generated, provision is gener-

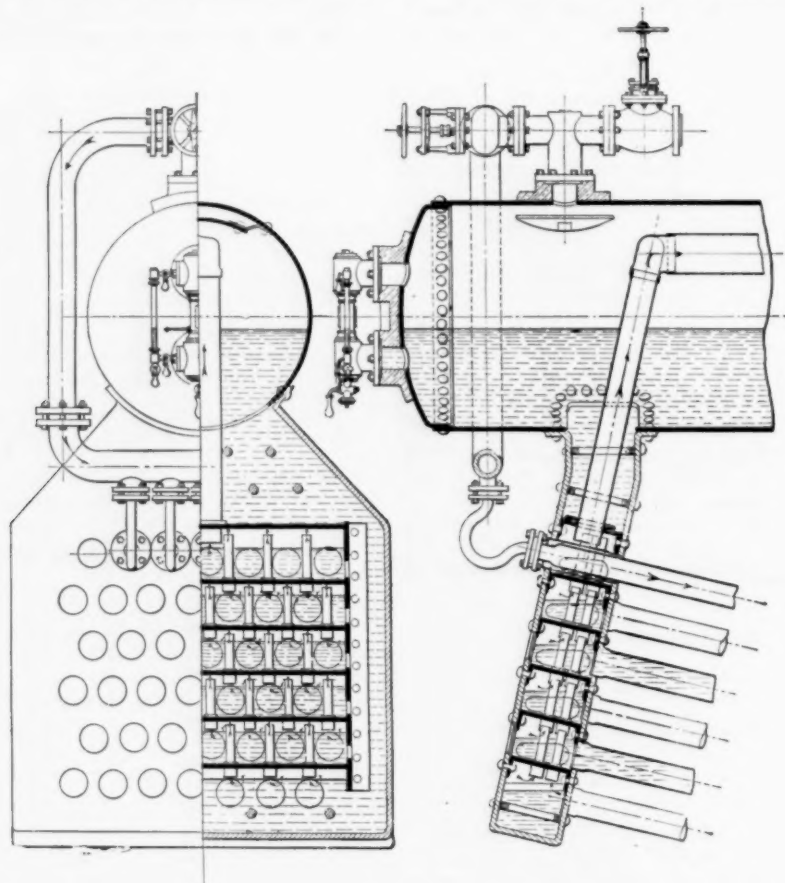


Fig. 7.—The Gehr Superheater.

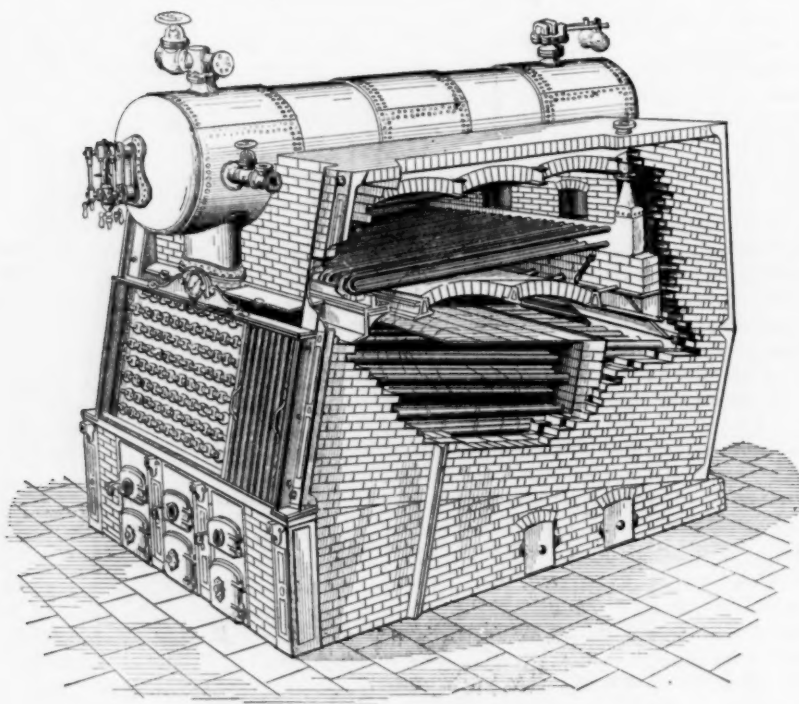


Fig. 8.—The Steindmuller Superheater.

#### PRACTICAL APPLICATION OF SUPERHEATED STEAM.

left to burn slowly as in an ordinary stove, and a more even temperature maintained. The space required is small, and repairs can easily be made if a suitable by pass is provided, without in any way hindering the operation of the rest of the plant.

ally made for flooding them with water. With bad feed water this introduces the difficulty with mud or scale, which must be guarded against, or a careless manipulation of the valves may cause a dangerous water hammer. It is therefore better practice to dispose the

superheater so that it can be protected at such times by dampers, and be subjected to the action internally of steam alone.

Cast iron superheaters have the advantage that they can stand, without injury, any temperature to which they are likely to be exposed, when properly placed. They are so much heavier and thicker than wrought iron, besides being ribbed after the fashion of a gas engine cylinder, that they require a higher heat for the same useful effect, but at the same time serve as reservoirs of heat, and tend to equalize the temperature of the steam in spite of wide variations in the furnace temperature. They must be accessible so that the soot can easily be blown from the ribbed surfaces. The use of cast iron for such a purpose introduces a certain ele-

3. No exposure of joints to the fire.

4. Provision for free expansion.

5. Disposition such that it may be cut out, or repaired, without interfering with the operation of the plant.

6. Ease of application to existing plants.

The tube elements may be arranged either in series or in parallel. In parallel, a small quantity of steam passes through each small tube, as in the Gehre type. The relatively large heating surface and small area of cross section, combined with the low heat conductivity of the steam, makes this arrangement seem well conceived. In series, as in the Schwoerer, the cross section of the heating coil must be larger and the steam speed higher. The high velocity of flow would seem to be ef-

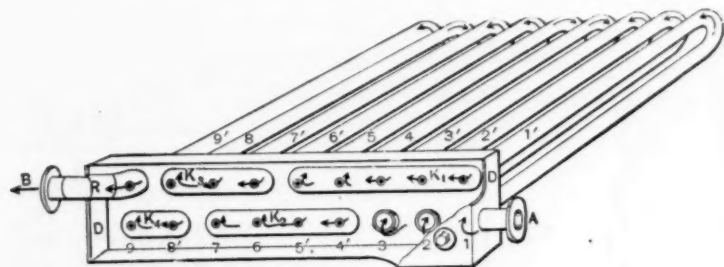


Fig. 9.—Header of Reisert.

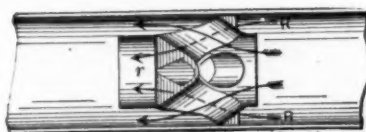


Fig. 10.—Device in Tubes of Reisert Header.

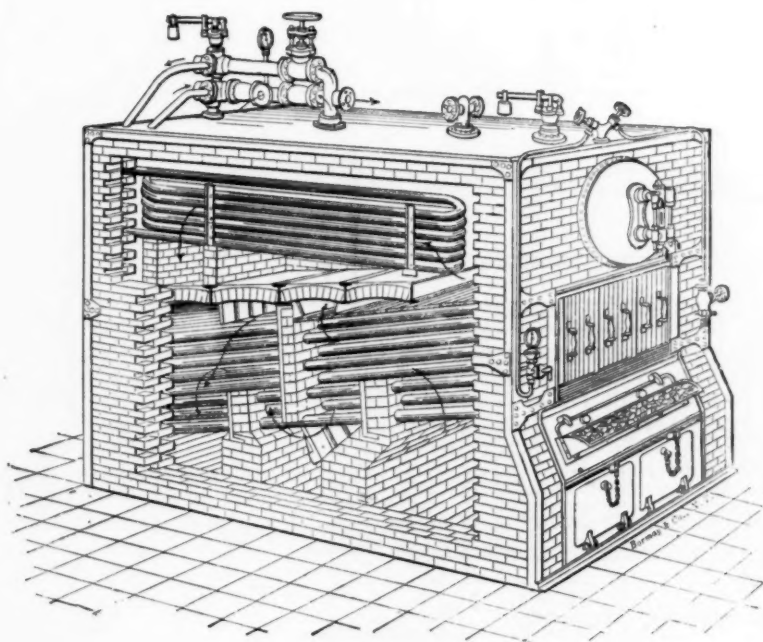


Fig. 11.—The Meyer Superheater.

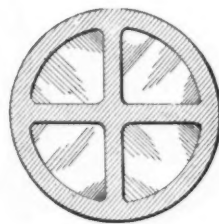


Fig. 12.—Section of Meyer Tube.

#### PRACTICAL APPLICATION OF SUPERHEATED STEAM.

ment of danger, though perhaps inconsiderable, on account of the porosity of castings in general and the particular likelihood of spongy places occurring in ribbed castings.

If the superheater were placed in the chimney, or in the main flue leading to it, too high a temperature of the flue gases would be required for an economical utilization of the heat. If the gases went off at a moderate temperature, 350 degrees to 500 degrees, the temperature of superheating attained would be so low as to be of little value. If placed too near the fire, the superheating coils could not withstand the heat. Hence an intermediate position must be chosen, where the gases have lost some of their heat, but may yet give up more to the water heating surface.

The requirements for a successful superheater are:

1. Security in operation, or a minimum danger of overheating.
2. Economical use of heat applied.

fective, as it enhances the whirling or eddying effect at turns or bends, causes a better mixture of the current, and gives a better chance for the whole body to come in contact with the heating surface. As yet it is impossible to decide which method is best, but it is conceded that if the volume is very large, and the superheating surface small, only the exterior portion of the current will be acted upon. Steam speeds through the coils are taken all the way from 60 feet to 160 feet per second.

It is an interesting fact that neither cast iron nor steel lose in tensile strength when subjected to the temperature of superheated steam, but, on the contrary, may be stronger.

#### Superheaters.

The Schmidt system of utilizing superheated steam, which is referred to frequently as resulting in the highest efficiency yet attained with the steam engine, is designed especially to attain the theoretical gain due to a



high initial temperature, a temperature which is impracticable with the ordinary engine. The steam is heated to 660 degrees F., and an engine of a special type is built to use it.

The illustration, Fig. 1, shows a boiler with feed water

is the feed water heater, which is a simple cylindrical vessel containing a coil of pipe. The feed water enters the heater at the bottom, and is discharged by a pipe near the top into the boiler. The lower end of the heater coil is connected with the lower end of the economizer

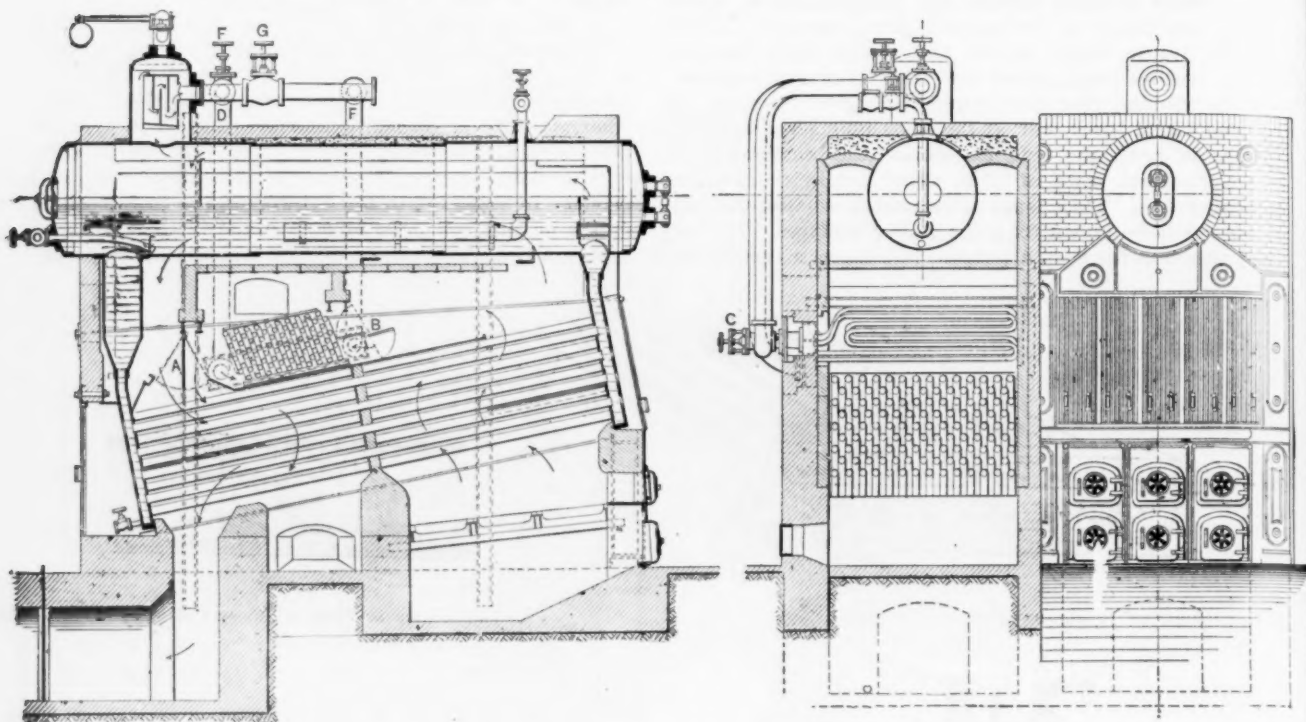


Fig. 13.—The Simonis & Lanz Superheater.

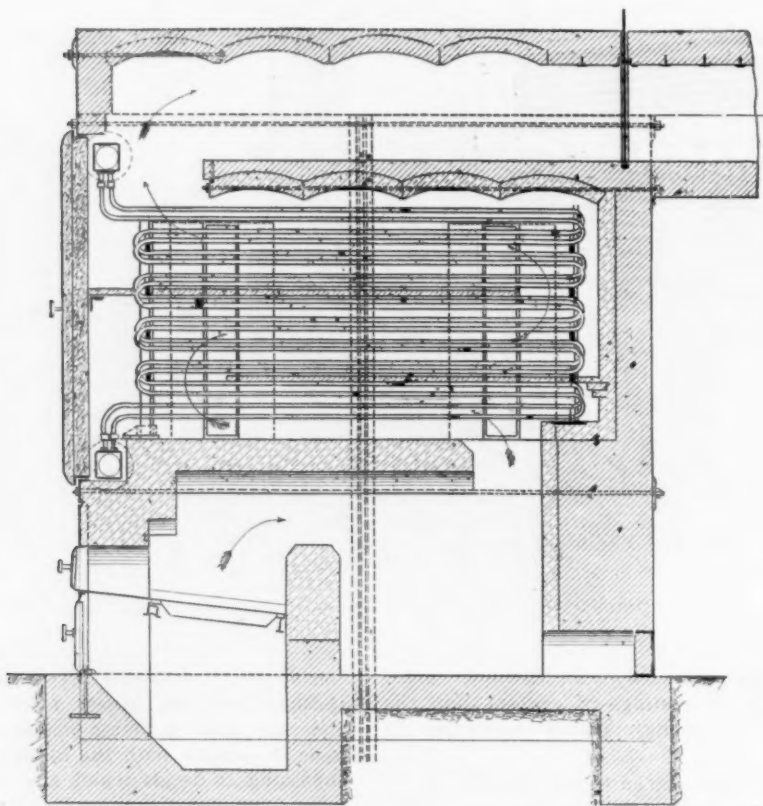


Fig. 14.—The Buttner Independently Fired Superheater.

#### PRACTICAL APPLICATION OF SUPERHEATED STEAM.

heater, economizer and superheater as built under the Schmidt patents by the Ascherslebener Maschinenbau A. G. The economizer consists of eight tiers containing five coils each of spirally wound 2-inch pipe. Directly above are eight tiers containing four coils each of  $2\frac{3}{4}$ -inch pipe constituting the superheater. Placed on a higher level

coil, and the upper ends are also connected together, and to the steam space in the boiler.

Steam entering the heater coil is condensed, imparting its heat to the surrounding water, and then, flowing to the economizer, it is re-evaporated and returned to the top of the heater coil to repeat the cycle indefinitely.

The use of distilled water in this manner obviates the danger of the economizer becoming filled with mud or scale, and the heater is of such a form as to be readily accessible and easily cleaned. A feed water temperature of 260 degrees, equivalent to a boiler pressure of 20 pounds, may be attained under favorable conditions.

The economizer and superheater are arranged with a view to using the heat of the gases completely, and, by a combination of a parallel and a countercurrent flow of the steam through the superheater, to protect it from destruction by the hottest gases. The path of the gases of combustion is downward, first through the superheater and then through the economizer, leaving the latter at a temperature of 350 degrees to 400 degrees F. To

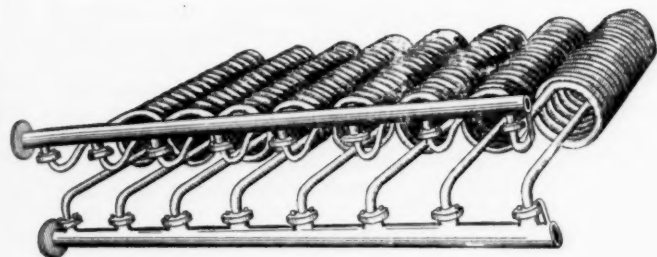


Fig. 16.

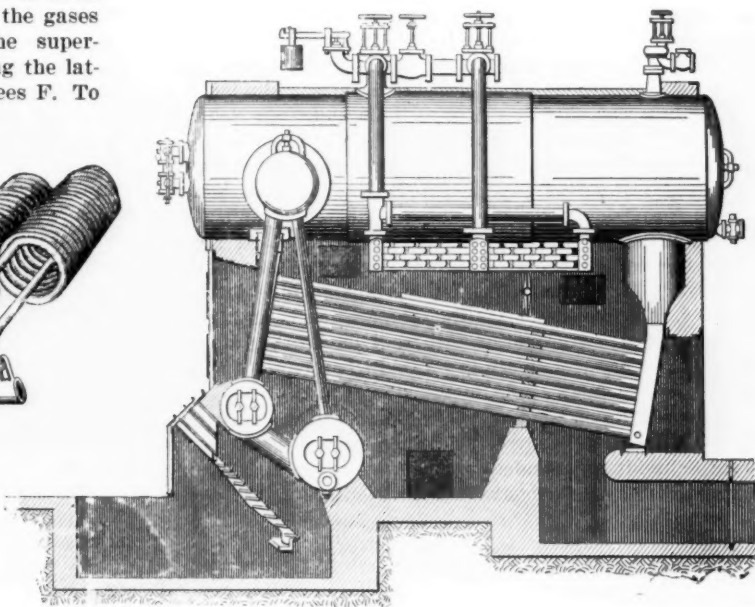


Fig. 15.

The Gohrig Superheater.

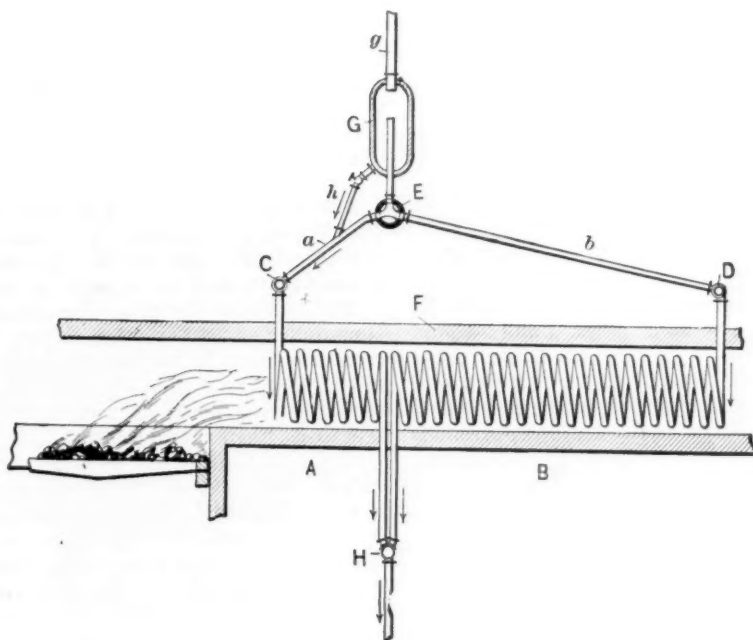


Fig. 17.—The Hildebrand Superheater.

#### PRACTICAL APPLICATION OF SUPERHEATED STEAM.

use the countercurrent principle as far as desirable, the wet steam enters the lower part of the superheated coil and flows upward through four tiers. Should the countercurrent principle alone be applied an economical use of the gases would be assured, but that part of the superheater which was in contact alike with the hottest gases and the hottest steam would deteriorate rapidly. Accordingly, the steam is led from the fourth tier to the eighth, or upper, tier, and passing down parallel to the flow of the gases, is withdrawn from the fifth tier. The steam, dried in the lower coils, is supposed to reach the

upper tier in this condition and become superheated by the hottest gases, which are just entering the apparatus. The degree of superheat can be controlled by dampers regulating the flow of the gases of combustion, that portion not passing through the coils being applied to the boiler heating surface.

The Schmidt Tandem-Heissdampfmaschine, as built at Aschersleben, is shown in Fig. 2. The engine is nominally single acting, with the high pressure cylinder be-

hind. The high pressure and low pressure pistons are cast in one piece, which is hollow. The space at the rear of the large piston, encircling the small trunk piston, constitutes the low pressure cylinder, while the jacket on the large cylinder and the space in front of the piston, together with the piston's hollow interior, form a receiver with a varying volume. During the inward stroke the steam in this receiver expands and does some work, so that the engine in reality is double acting. Poppet valves are used. This construction requires a single stuffing box, which is exposed to low pressure

steam only, and the hollow piston forming part of the receiver is kept comparatively cool, while any heat transferred is not lost but taken up by the low pressure steam.

Simple engines built after the Schmidt design are single acting, and therefore have no stuffing box. The trunk pistons are made very long, and the packing rings placed well forward, so that for much of the stroke they are in contact with a portion of the cylinder, which is exposed to the atmosphere during part of each revolution. They never reach that part of the cylinder which is exposed to the highest steam temperature. Cross compound engines, to use steam at such high temperatures, are built with single acting high pressure cylinders and are made double acting on the low pressure side, since all of the superheat disappears in the first cylinder.

Engines and superheaters are built under the Schmidt patents by several concerns, and, of course, there is considerable variation in the design. Balanced piston valves are used instead of poppet valves, and vertical boilers with a provision for controlling the degree of superheat by admitting to the superheater coil condensed steam from the coil in the feed water heater. These boilers have very low ratios of water heating surface to grate surface, and in some cases the evaporation is as high as 10 pounds of water per square foot of heating surface per hour. Very wet steam is wanted to protect the superheater.

Some results of tests on a 3000 horse-power, four-cylinder, vertical, triple expansion Sulzer engine, using steam from Schmidt independently fired superheaters, are also summarized here for convenient reference:

| Tests using steam.   | Moderately<br>super-<br>heated. |       |       | Saturated. |       |       |
|--|---------------------------------|-------|-------|------------|-------|-------|
| Boiler pressure<br>in pounds (ab-<br>solute) . . . . .                     | 196.8                           | 199.9 | 198.4 | 199.8      | 202.8 | 202.8 |
| Initial pressure<br>in high pres-<br>sure cylinder<br>(absolute) . . . . . | 187.3                           | 195.5 | 188.4 | 190.3      | 194.6 | 195.9 |
| Temperature of<br>steam in valve<br>chest . . . . .                        | 582                             | 585   | 614   | 531        | 381   | 381   |
| Total indicated<br>horse-power . . . . .                                   | 2,900                           | 2,779 | 2,868 | 2,850      | 2,951 | 2,999 |
| Pounds of steam<br>per horse-power<br>hour . . . . .                       | 9.64                            | 9.67  | 9.56  | 10.29      | 11.77 | 11.75 |
| Watt hours per<br>pound of coal . . . . .                                  | 477                             | 482   | 479   | 447        | 438   | 435   |

The arrangement of the coils in the Hering superheater is shown in Fig. 3. The tubes are small in diameter and long, and are made of Swedish steel without welds. Ordinarily steam temperatures of 450 degrees to 550 degrees are attained, though temperatures as high as 800 degrees can be used. Figs. 4 and 5 show the superheater as applied to an elephant boiler. The hot gases leaving the grate heat the lower side of the mud drums, then pass up around the boiler shell near the rear end into the superheater, thence down around the front portion of the boiler shell, and return back through the fire tubes to the chimney. The drawing shows an arrangement of dampers by means of which the flow of gases can be controlled completely, or shut off altogether from the superheater, in which case they will be applied as economically to the water heating surface as though no superheater were present.

The cut, Fig. 6, shows a water tube boiler with superheater, as built by Walther & Co. for the Gutehoffnungshütte at New Oberhausen. Thin, mild steel tubes are used. The location of the baffle plates is clearly shown, and indicates that the gases make four passes over the water tubes. Steam from the drum above flows down through the pipe at the side, and a portion is drawn through the six U-shaped tubes which the gases encounter after their first pass through the water tubes. Another portion of the steam goes through the bank of five tubes beyond. The entrained water and the remainder of the steam circulate through the last bank of 12 tubes, where more heating surface is given than in the preceding groups, because this series of tubes is exposed to cooler gases. The superheated steam is withdrawn from the three groups, as shown by the pipe dotted in the drawing. In this case the steam divides into

three portions, each of which traverses throughout its whole length a group of pipes, forming one section of the superheater.

The Gehre superheater, as adapted to a water tube boiler, is shown in Fig. 7. The boiler in question is built by the Rather Röhrenkesselfabrik, and has its water legs made of sheet steel stayed with channel irons riveted between each tier of water tubes. Through each channel project, above and below, a series of nipples, the whole being contrived so as to form at the end of each row of tubes a small water chamber, with a steam pocket above. The nipples make free communication between these steam pockets, so that steam generated in any tier of tubes can easily reach the steam drum above without meeting any obstruction.

A row of water tubes is omitted, and sleeves, carried through the water legs, allow three or four small superheating tubes to pass through each sleeve into headers outside, thus removing all joints from the fire. Wet steam enters the front header, and superheated steam is withdrawn from the rear. If a high degree of superheat is desired, two tiers of superheating tubes are put in, so that the steam makes a double pass.

With the ordinary horizontal fire tube boiler, a series of coils is placed in the combustion chamber at the rear, so that the gases pass over them before entering the flues which lead to the uptake. In either type provision is made for flooding the superheater with water. Temperatures of 180 degrees to 270 degrees above the saturation temperatures are usually attained.

The Steinhüller superheater is made up of a series of U-tubes, 1 5-16 inches internal diameter, which terminate in a two-compartment header placed at the back of the boiler, between the steam drum and the water tubes, Fig. 8. The gases reach the superheater after making a single pass through the water tubes. Brick arches and dampers are so placed that the superheating tubes can be isolated from the flue gases if necessary.

In the header there are openings provided with suitable screw plugs in the outer wall opposite the tube ends. The plugs for that compartment which the wet steam enters are provided with stems bearing little disks which serve to choke the entrance to the superheating tubes, retard the flow, prevent short circuiting and increase the heat absorption of a given weight of steam without increasing the heating surface unnecessarily. The discharge end of the U-tube is left unrestricted.

The superheater built by Hans Reiser presents novel features, inasmuch as the attempt is made to equalize the degree of superheat by means of an increasing velocity of flow of steam through the apparatus, and by a special provision for mixing the current.

The superheating tubes are placed much as in the Steinhüller and many other makes. The important difference is found in the header shown in Fig. 9. The wet steam enters at A, flows through the U-tubes 1, 1', 2, 2' and 3, 3' back to the hood K<sup>1</sup>, thence through 4, 4' and 5, 5' to K<sub>2</sub>, then through 6, 6' and 7, 7' to K<sub>3</sub>, through 8, 8' to K<sub>4</sub>, next through 9, 9' to R, and from B out to the engine. The hoods K<sub>1</sub>, K<sub>2</sub>, K<sub>3</sub> and K<sub>4</sub> have the wet steam on the outside, and the superheated on the inside, so that there is no pressure difference. It appears that the steam flows through three tubes, then through two and finally through one, so that, if its initial speed is 50 feet per second the speed rises to 75 feet, and then to 150, increasing with the superheating temperature, because, as it becomes more like a perfect gas, the frictional loss diminishes.

To facilitate the mixture, a device, shown in Fig. 10, is placed within each tube to turn the cooler central portion of the current against the wall and the hotter external portion into the center of the tube. The superheater can be filled with water in case of necessity, and a damper is located so that more or less of the gases can be short circuited and the temperature thus regulated.

In Fig. 11 is to be seen the arrangement of a superheater adopted for water tube boilers by B. Meyer. It is placed in duplicate at either side of the steam drum, above the water tubes, with brick arches so placed that by the use of dampers the superheating can be controlled or the apparatus cut out altogether.

The superheater consists of a long, thick walled,



seamless tube, made of soft steel, through which the steam makes a single pass from one end of the coil to the other. A cross section of the tube is given in Fig. 12. It is divided into four parts throughout its length by walls, the better to transmit the heat taken up to the center of the current of steam, and to effect a complete superheating with a small number of coils, an ample cross sectional area, and consequent low rate of flow, with little loss of pressure. The tubes have a helical twist in order to give the current a rotating motion and throw any contained moisture against the hot outer walls and keep their temperature within safe limits.

The superheater designed by Simonis and Lanz and illustrated in Fig. 13 is interesting on account of the arrangement of the baffle plates and dampers. It will be seen at once that steam entering the upper left hand compartment will pass through the U-tubes into the compartment below, then through other tubes into the

A and B. By manipulating the back dampers at B any desired proportion of the gases can be sent through the superheating coils, or around them and in contact with the steam drum above before reaching the rear end of the water tubes. By closing the dampers at A and B the

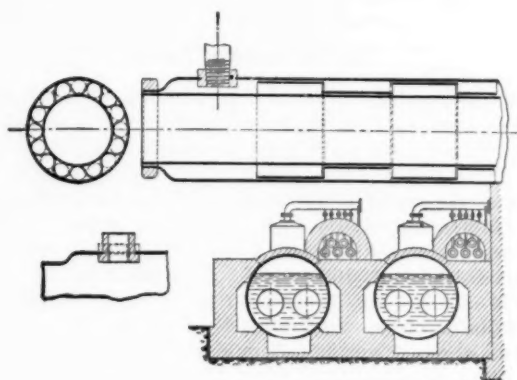


Fig. 18.—The Fehrmann Superheater.

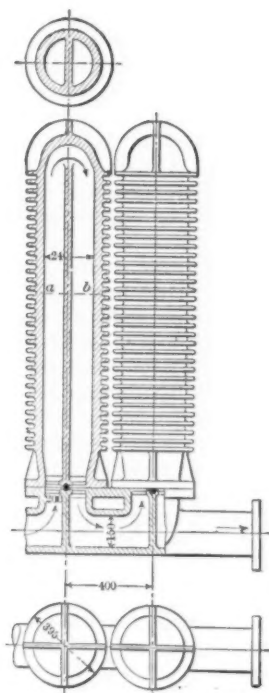


Fig. 20.—The Bohmer Cast Iron Superheater.

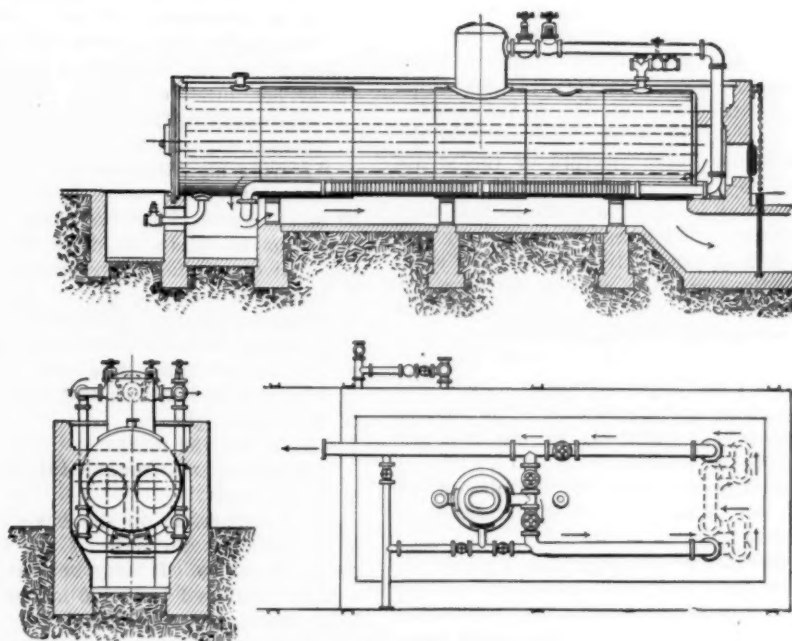


Fig. 19.—The Schucoerer Superheater.

#### PRACTICAL APPLICATION OF SUPERHEATED STEAM.

upper middle space, next to the lower right hand compartment and finally to the upper right hand compartment and out. The steam generated in the boiler takes a sinuous passage through a separator in the steam drum, and the valve G being closed flows through the valve C to the left hand portion of the lower header and through the superheating coils in the manner described, becoming thoroughly mixed.

Above the superheating coils is a tile floor extending along under the middle part of the steam drum, and above the water tubes are baffle plates which control the direction of flow of the gases. Dampers are placed at

superheater can be completely isolated without diminishing the water heating surface of the boiler in the least.

The arrangement of an independently fired superheater can be seen in Fig. 14. The steam enters the header at the top and, dividing into a number of small currents, passes through the coils forward and back ten times till it collects in and is discharged from the lower header. The builders, A. Büttner & Co., use mild steel tubes made with very thick walls. Their method of setting a superheater with a water tube boiler is very similar to the practice of Babcock & Wilcox. An interesting feature of the boiler is the insertion of a trough in

the steam drum, connecting with the water legs front and back, to afford an unobstructed path for the water which rises with the steam in the front leg and thereby to maintain a rapid circulation.

In the Göhrig & Leuchs'sche superheater, Fig. 15, the parallel and countercurrent principle is adopted. Steam is admitted at either end of a series of coils and is withdrawn at the middle, with the same intent as in the Schmidt system. The arrangement of piping here, as indeed with many types, permits the use of saturated steam, of superheated, or of a mixture of the two.

The Göhrig superheater recommends itself by reason of the ease with which, in case of necessity, a new element can be substituted for an old one. As the cut, Fig. 16, shows, it consists of a series of spiral coils of soft steel pipe. The ends are brought outside of the boiler setting and connected by means of bolted flanges to headers.

Some excellent features are embodied in a superheater patented by R. Hildebrand. It is shown in Fig. 17. Steam from the pipe *g* enters a separator, *G*, and flows thence to the headers *C* and *D*, which connect directly with the superheating coils *A* and *B*. A three-way valve, *E*, controls the distribution of steam to the two coils and a by pass, *h*, permits the water from the separator to flow into the coil *A*, which is exposed to the hottest gases. In the coil *A* the steam flows in the same direction as the gases of combustion, while in the coil *B* it flows in the opposite direction, the parallel and countercurrent principle of Schmidt being here introduced. The rear coil, being exposed to cooler gases, is longer than the front coil. By controlling the distribution at *E* an approximately equal temperature in both members should be attained. The superheated steam is withdrawn at *H*.

In the Fehrmann superheater, shown in Fig. 18, the steam to be superheated is contained in an annular space between a 7-inch and a 10-inch pipe. The larger pipe is worked down to a suitable size at the ends and a tight joint secured by welding. The hot flue gases pass through the inner tube and around the outer. Between the tubes are corrugated strips of sheet copper bent into a cylindrical shape, the corrugations being parallel to the axis of the cylinder, the strips pressing by their own elasticity against both the inner and the outer shell. To secure a better mixture of the steam passing over these plates they are so arranged that the crests of the corrugations on one plate are in line with the hollows of the adjacent plates. Since copper has six or seven times the heat conductivity of iron and since there are numerous lines of close contact between the corrugated plates and the inner and the outer tubes, the additional heating surface thus obtained should be very effective.

The cut shows how this apparatus may be applied to an old boiler with little or no interruption to its regular operation. By providing a short cut to the chimney through the superheater it is possible to control the flow of gas, and the arrangement indicated permits of its being easily thrown out of use whenever it is desirable to do so.

The Schwoerer superheater is shown in Fig. 19 applied to an internally fired boiler. A glance at the end view shows that it is placed in the side flues where the gases are making their second pass over the water heating surface. It is made up of 10-foot lengths of cast iron pipe, ribbed outside circumferentially and inside longitudinally to split up the current of steam into small parts, which is important because of its low heat conductivity. The intention is to provide ample heating surface internally and externally with a compact apparatus and by means of the excess metal to store or give out heat as the flue temperature fluctuates, so as to equalize the steam temperature, which is, in fact, kept fairly constant. A temperature of 750 degrees can be safely maintained. Dampers are considered unnecessary and are installed only in exceptional cases.

The joints are flanged and shaped to let in a ring of special form imbedded in a refractory cement and then drawn up with bolts. They are said to be absolutely tight under all conditions of temperature and pressure.

Fig. 20 represents a cast iron superheater built by

Gebrüder Böhmer of Magdeburg. The elements are ribbed externally and have a single interior wall extending almost to the far end of the element, which is closed, so that the steam passes along one side and returns through the other, inlet and outlet being at the same end of the casting. Perfectly free expansion and tight joints are thus secured with little trouble.

The types illustrated serve to show the variety of ways in which the problem of superheating steam has been attacked. Such types as the Schmidt, the Schwoerer, the Gehre, the Walther and the Hering have been in the market long enough to demonstrate their utility, and hundreds of installations have been made of each type, over two thousand indeed of the Schwoerer. Others have yet to stand the test of time, and one, the Hildebrand, so far as the writer knows, has not yet been built at all. The fact that almost all of the leading boiler makers in Germany to-day find it necessary to have some sort of a superheater to offer is a sufficient indication of the tendency of the times.

### The German Tariff.

Cables to the daily newspapers report some of the figures proposed in the new tariff which is to come up for discussion in Germany. As cabled these are:

"Finished pig iron, 1 mark per hundredweight; cast piping for walls, above 7 mm., in the rough, 3 marks; the same finished, 4½ marks; the same, below 7 mm., in the rough, 6 and finished 9 marks. Rollers, rough, 3½ marks; finished, 10 marks. Fine castings, 24 marks. Rails and blooms, 1 mark 50 pfennigs. Wrought bars and hoops, from 1 to 5 marks. Sheets, 5 marks 50 pfennigs and 7 marks. Rough wire, from 3 to 5 marks; polished or galvanized, from 3 marks 50 pfennigs to 6 marks.

"Steam boilers, from 5 to 8 marks per hundredweight.

"Spades and shovels, 6; forks, 10; saws, 15 and 20; files, 10 to 40; rough screws, 5; finished screws, 12 marks per hundredweight.

"Aluminum, hammered or rolled, 12 marks; lead, rolled, 3; copper, wrought or rolled, 12; copper wire, 12 marks per hundredweight.

"Locomotives, from 9 to 11 marks per hundredweight.

"Steam engines, 3½ marks per hundredweight.

"Sewing machines, 35 marks per hundredweight.

"Machinery for wood, iron and stone working, from 20 marks on machines weighing 2½ hundredweight to 4 marks on machines weighing 10 tons. Steam thrashers and mowers, 9 marks per hundredweight.

"Miscellaneous machinery, from 3 marks 50 pfennigs to 18 marks per hundredweight.

"Dynamos and motors, from 9 marks per hundredweight on machines weighing 5 hundredweight or less to 6 marks on dynamos and motors weighing from 5 to 30 hundredweight.

"Bicycles, 150 marks.

"Bicycle parts, rough, 40; finished, 150 marks per hundredweight."

It is impossible on the basis of these data to form any intelligent estimate of the probable effect of the proposed duties. It may be stated that the "hundredweight" referred to is 100 kg. or 220 pounds, the mark being approximately 25 cents.

The production of sulphate of ammonia in Great Britain in recent years has been as follows, in gross tons:

Amount of Sulphate of Ammonia Produced in the United Kingdom.—Gross Tons.

|   | 1900.   | 1899.   | 1898.   |
|---|---------|---------|---------|
| Gas works.....  | 142,419 | 133,768 | 129,590 |
| Iron works.....   | 16,959  | 17,963  | 17,935  |
| Shale works.....  | 37,267  | 38,780  | 37,264  |
| Coke oven works.....                                    | 10,393  | 7,849   | 5,403   |
| Producer gas and carbonizing works (bone and coal)..... | 6,688   | 7,360   | 6,165   |
| Totals.....   | 213,726 | 205,720 | 196,357 |

Of the total for 1900 Scotland produced: From gas liquor works, 15,736 tons; from iron works, 16,559 tons; from shale works, 37,267 tons; from producer gas, coke, and carbonizing works, 2561 tons. The total is 72,123 tons, as compared with 72,663 tons for the previous year.



## Lake Iron Ore Matters.

DULUTH, MINN., July 29, 1901.—Lake conditions are more satisfactory than of late and the boats are moving without appreciable delay and with excellent dispatch at both ends. As much ore as they can handle is coming from mines, and the lower lake docks are better able to care for receipts than earlier. The biggest individual shipments are from Fayal, Mahoning and Mountain Iron mines of the Mesaba. The Fayal is shipping from 85,000 to 90,000 gross tons a week, nearly 15,000 tons every day; the Mahoning about 55,000 tons weekly and the Mountain Iron, if not quite, nearly as much. The Chapin is again shipping heavily, having recovered from the effects of the fire at Quinnesec Falls that destroyed its hydraulic plant and crippled shipments for a time. The Lake Superior, Cleveland Cliffs and Norrie mines are also pushing along very strongly. There is no change in freight rates, though the fall grain contract rate is higher by considerable than the present ore rate. Many of the mines now shipping so strongly will be able to let up some when the grain movement comes along. Indications are now, in spite of the pessimistic reports of speculators and others, for the heaviest wheat crop the spring wheat States have ever known, and it is possible that the grade will be very high.

The Fayal mine recently increased its car requirements by 200 cars daily. This reminds one of the time, but 12 years ago, when the total shipment out of Minnesota was less than 200 cars, and those cars of about 20 tons, against an average now of about 30. In 1889 the Tower and Ely mines were shipping about 200 cars a day and thinking that a good record. Now one mine calls for that many cars in addition to its already great output. Nothing better illustrates the growth of the mining business of the State than this incident.

Some splendidly rich ore is coming out of the Chisholm, in T 58 R 20, opened recently by the American Mining Company. The average analysis of a large shipment just made was 66.44 iron, 0.033 phosphorus and 0.004 sulphur. The mine is new and is just commencing to ship considerably. A large amount of ore of moderate grade is being found about Hibbing, which seems to be the chief point for important developments along the range. It is very evident that the ore formation is wider there than at any point yet determined and that the depth of the ore is great. A small share of the Mahoning ore body, lying north of that mine, has just passed into the possession of the Chemung Iron Company and will be mined later by the milling process. The Donora Mining (Union Steel) Company are still looking for ore, and are negotiating for some of the Hill lands, it is asserted. They are also exploring at the west end of the range in T 56 R 23 and at the northeast in T 59 R 15. Mr. Donner has been on the range for some time lately. The Hill interests are exploring in T 56 R 23 also, and have a number of State leases there that are said to make a good showing for ore. The Oliver Iron Mining Company have abandoned many holdings on the far east end of the range. The Sharon mine will commence shipping shortly. The Stevenson is now mining about 5000 tons daily with its great shovel. There is a width of about 70 feet of ore for a length of more than 1500 feet, and three shovels are widening this surface as rapidly as may be. The Adams mine has not decreased production as much as local reports would indicate, and the number of men laid off has not been great. It is possible that the Oliver, and perhaps the Ohio, which have not been opened this year, may resume shipments very soon. The Republic Iron & Steel Company's mines are running under check and putting out but a small tonnage. Messrs. Pieler, Schulz-Briesen and Mellin, German mining officials, who are visiting this country on a tour of study, have been on the Minnesota range this week, and will spend several days in the Marquette and Houghton regions before returning East.

On the Gogebic the Palms is reported by newspapers as closed down indefinitely, on account, it is stated, of small sales of ore. The newspaper report that the Montreal mine was to be bought by some branch of the

United States Steel Corporation is an error. The Montreal is not a large property. Hayes Brothers are busily exploring the properties they took hold of after selling the Ashland, and ore may be mined by them very soon. The total shipments off this range are about on a par with this date a year ago, and reach nearly 1,300,000 tons. This is slightly under half last year's total. The weekly shipments are now large.

The United States Geological Survey is completing its work in the region about Iron River and Iron County, a part of Florence County and Mastodon Town, Menominee range. It is a continuation of the survey of the Crystal Falls district that was finished three years ago. The general supposition is that ore exists in the territory immediately under survey, but under such accumulations of drift as to make exploring costly. It is regarded as a true continuation of the Menominee range. Much fine blue ore is found as float near the Brule River, and it is supposed that there is a quicksand drift 200 or 300 feet thick. The work of the survey, therefore, is of especial economic value.

The Great Western mine was ordered closed three weeks ago, then the orders were rescinded; now they are repeated and the mine is closed. Two hundred men are out, but the new shaft is being pushed as fast as possible. There are about 100,000 tons of ore in stock at the mine, which will be shipped at once. The Crystal Falls mine is shipping heavily and the large stock is gone. Some men have been laid off at the Oliver mines at Iron River for a time. The Pittsburgh & Lake Angeline Company are opening the Monongahela and will soon have machinery at work. The small stockpile will be shipped at once and the bunch of ore already opened will be mined immediately. A mine is liable to be developed at the Hope. It is hoped to make the Quinnesec Falls hydraulic plant do duty at the Aragon mine, recently come into the possession of the United States Steel Corporation.

A new corporation to the ore regions are said to be interested in explorations on the Marquette range, near Republic, where there are favorably located lands. E. F. Bradt is working in that region. Pumps have been pulled at the Imperial and Webster mines of the Michigamme section, where the old Portland, under Oglebay, Norton & Co., is said to be finding ore. It is a limonite. The East New York mine is looking better than ever and some 200 tons are hoisted daily from the shaft. Extremely active work is under way at the prospects around Negaunee taken by the Cleveland-Cliffs Company and the number of drills working there still continues large. Work on this company's large charcoal furnace at Marquette is well under way.

There is every probability that the amount of ore expected to come out of the Helen mine, Michipicoton range, will be moved, and quite easily. Shipments are gradually increasing and now amount to nearly 80,000 tons. The daily shipment is large. Powell & Mitchell have left the mine and the work is under the direction of Foley Bros. as superintendents. No ore can be sent from the new Josephine till another year. It is expected that the steel rail mill at the Sault will be running in September or early October.

D. E. W.

The Oregon Short Line has ordered from the Lima, Ohio, Locomotive & Machine Company one 65-ton Shay locomotive. This engine is to be used on a mountain branch which has 5½ per cent. grades. It will weigh (empty) about 113,000 pounds, will have three cylinders 13 x 13 inch, 12 drivers 32 inches in diameter, 48-inch boiler, Shelby steel tubes, tank capacity for water 3000 gallons and coal capacity 5 tons. The engine will be equipped with Buckeye couplers, Sullivan metallic packing on piston rods and valve stems, Leach sanders, Nathan injectors and Star steam gauge.

In the United States Circuit Court at Pittsburgh last week a motion for a new trial was refused in the case of the Lake Superior Consolidated Iron Mining Company against the Salem Iron Company. A verdict of \$40,000 has been recovered by the plaintiff for the refusal of the defendant company to receive ore contracted for.



## Foreign Tariffs.

### The Russian Tariff on Agricultural Implements.

WASHINGTON, D. C., July 30, 1901.—Through the inadvertence of the United States Consul at Moscow, Russia, and the Deputy Consul-General at Frankfort, Germany, the erroneous statement has gained wide circulation that the importation into Russia of American agricultural machinery has practically ceased as the result of the retaliatory duties levied by the Russian Government because of the action of the United States in assessing countervailing duties on Russian sugar. It appears that, according to Russian correspondence published in German papers, certain wholesale firms in Moscow recently inquired of the American Consul at that point as to "why the importation of these articles had almost ceased," and he promptly told them that the enhanced Russian duty was the cause. The Deputy Consul-General at Frankfort, quoting from these publications, states that the Moscow district annually exports goods to the United States to the value of more than \$4,000,000, but that the Moscow merchants fear that in consequence of the tariff differences between the two governments the exports from that district will be greatly reduced this year. With a view to correcting the inaccuracies in the above statement, a prominent official of the Treasury Department said to the correspondent of *The Iron Age*:

"The retaliatory decree of the Russian Government affecting certain manufactures of iron and steel specifically exempted agricultural machinery and farming implements of all kinds. It is hardly to be believed that American exporters of this class of manufactures are so poorly informed concerning the facts that they have reduced their shipments because of erroneous understanding concerning the tariff rates to be paid. The Department assumes that these exports are made on orders received from Moscow merchants, who must be thoroughly familiar with the tariff rates. So many inaccurate statements have appeared in the daily press in Germany, Russia and the United States that it may be well to state specifically that if there has been any reduction in the exports of agricultural machinery, &c., it has not been due to the tariff restrictions placed upon these products."

### Maximum and Minimum Rates.

A very interesting statement has reached Washington from an authoritative source concerning recent conferences at Canton between the President and prominent majority leaders in Congress, at which it is said favorable consideration has been given to a plan looking to the enactment of maximum and minimum tariff rates throughout all the schedules of the present law. The purpose of this arrangement, which is similar to that in force in the leading European countries, would be to enable the President both to negotiate reciprocity treaties and to meet just such discriminations against American commerce as are embodied in the recent Russian decrees. The enactment of maximum and minimum schedules would not necessarily involve changes in the present tariff rates, which would be known as the "general Tariff," but would involve the adjustment of a series of parallel rates from 10 to 20 per cent. lower to be known as the conventional or preferential tariff. These conventional rates would only be granted upon the negotiation of reciprocity treaties and in consideration of important concessions, and they could be withdrawn at any time upon the proclamation by a foreign country of new tariff rates discriminating against our commerce.

### The Proposed German Tariff.

In this connection the officials of the State and Treasury departments have read with great interest the cabled abstracts of the draft of the proposed new German customs tariff law printed in the *Reichsanzeiger* of the 26th inst., and while very general regret is expressed that the German Government should put forward such a measure at this time, the disposition here is to view the matter philosophically and to hope that the meas-

ure as originally presented may be very materially modified before it becomes a law.

While the departments have not yet received any further data concerning the new bill than those contained in the cabled press dispatches, they have detected an ambiguity in these statements which mitigates to a considerable extent the apparently exorbitant advances made on the principal schedules. Through inadvertence the rates given in the cabled dispatches are represented as the duties "per hundredweight," but an examination of the present tariff shows beyond question that the rates are intended to be calculated on the basis of 100 kg., or 220 pounds. Practically the entire German tariff, which is almost exclusively specific, is framed on the basis of 100 kg., or on the metric ton, which is equal to 1000 kg., or 2200 pounds.

With a view to ascertaining accurately the rates proposed by the new bill the United States Ambassador at Berlin has been instructed by cable to forward to the State Department copies of the measure, which are now expected to arrive in the course of a few days.

Already the Department is in receipt of inquiries as to the proposed policy of the administration with regard to the bill, and while no specific replies have yet been made, the correspondent of *The Iron Age* is in position to outline the administration's probable course. So far as the general features of the bill are concerned, the measure will be regarded as of purely domestic concern to the German people, with which this Government has absolutely nothing to do. It is pointed out that the American Congress does not consult the officials of Germany or of any other country in formulating revenue laws, and hence we cannot consistently find fault with Germany when she exercises the same right of independent action. It is further suggested that when the McKinley and Dingley acts were passed by Congress relatively high rates were placed upon a number of commodities for the sole purpose of shutting out foreign competition, at the request of the same interests that are now likely to be injuriously affected should the proposed German tariff become a law.

With regard, however, to certain provisions of the bill which may seem to be aimed directly at American commerce, it is entirely within the province of the State Department to make vigorous representations to the German Government against their adoption. Such items can be taken up and discussed with perfect propriety, and such action will probably be taken either by the United States Ambassador at Berlin or by Special Commissioner Kasson, who will be able to confer with the German Ambassador at this capital.

It is anticipated that American manufacturers whose interests are affected by the new bill will receive their strongest co-operation from German consumers, who will be the chief sufferers if the projected measure becomes a law. These interests will not hesitate to bring all possible pressure to bear upon the Government authorities, and it is confidently predicted here that the bill will undergo a very radical modification before its passage.

W. L. C.

**A Large Order For Power Transmission.**—Jones & Laughlins, Limited, of the American Iron & Steel Works, Pittsburgh, have received an order from the British Westinghouse Electric Company, Limited, for all the power transmission for their new shops being erected at Birmingham, England. The order embraces a large lot of cold rolled shafting, pulleys and hangers, and was secured in keen competition with English and also German makers. Jones & Laughlins, Limited, are quite elated over receiving this order, as it is one of the largest export orders ever placed. Additional contracts of this kind will be given out before long, as the above is only a part of the requirements of the new shops in the way of power transmission machinery.

A movement is under way to incorporate a new borough out of South Sharon, where the works of the Sharon Steel Company are located, and give it the name of "Buhl City."

# The Iron Age

New York, Thursday, August 1, 1901.

|                         |   |   |   |   |   |                            |
|-------------------------|---|---|---|---|---|----------------------------|
| DAVID WILLIAMS COMPANY, | - | - | - | - | - | PUBLISHERS.                |
| CHARLES KIRCHHOFF,      | - | - | - | - | - | EDITOR.                    |
| GEO. W. COPE,           | - | - | - | - | - | ASSOCIATE EDITOR, CHICAGO. |
| RICHARD R. WILLIAMS,    | - | - | - | - | - | HARDWARE EDITOR.           |
| JOHN S. KING,           | - | - | - | - | - | BUSINESS MANAGER.          |

## The Drought in the West.

Several of the Western States, all of them classed among the heavy producers of corn, have been afflicted by a long drought accompanied by excessive hot weather. The worst sufferers have been Kansas, Missouri and Nebraska, but South Dakota, Minnesota, Wisconsin, Illinois, Arkansas, Oklahoma and Texas have also sustained considerable injury. It is estimated that the corn crop of this year will be fully one-third below the average, if not more than that. The damage in Kansas and Missouri is so great that the farmers of those States will be obliged to purchase corn in other States to feed their stock, while it is asserted that Nebraska will do well if it raises enough for its own home requirements. The conditions, so far as corn is concerned, are thus so serious that some agricultural writers characterize the damage to the corn crop as a national calamity. They sharpen their pencils and figure losses to the farmers running into the hundreds of millions. From their point of view the country is on the verge of ruin, and we may henceforth expect no traffic for railroads and no demand for manufactured goods.

Possibly such would be the condition of affairs if the country was in such shape as in 1894, the last previous year of a crop failure. But in that year the country was afflicted by a shortage in both the wheat and corn crops, and had suffered from a shortage of the wheat crop in the previous year, and almost every Western farmer carried a mortgage drawing a high rate of interest. The West was practically without money, depending almost entirely on the East for financial accommodations. Since then a revolution has been wrought, and any comparison made with 1894 must take the changed conditions into consideration. The West has been blessed with heavy crops every year from 1895 until this season, and all farm products have brought such good prices that it is now rare to find a Western farm incumbered by a mortgage. Most farmers have a bank account, and the little banks in Western towns have for the past year or two been overflowing with money for which there was little demand from borrowers. The loss of a considerable part of the corn crop, therefore, will not ruin any considerable part of the Western bucolic population.

Another vast difference from 1894 is found in the huge wheat crop of this year. The winter wheat crop has been safely harvested and the spring wheat crop is now beginning to be cut. In Kansas and Nebraska heavy crops of wheat have been raised, so that even those States have been partially favored by nature this year. Their people would be in no danger of famine if they were to be wholly cut off from outside supplies.

While it would be foolish to assert that the shortage in the corn crop will have no effect on the general business of the country, the effect will certainly not be so serious as calamity howlers and speculators would have us believe. Instead of our reverting to the conditions prevailing in the fall and winter of 1894, when the farm-

ers were too poor to buy anything and the railroads barely had traffic enough to pay fixed charges, we will probably find a little shrinkage in the demand here and there, but no great falling off of general business. Projectors of new enterprises may go slow for some little time and caution in making commitments may be made by capitalists. This may be a good thing for the country, as for some time we have been traveling at too fast a pace.

## What the Machinists Have Lost.

While it may be claimed by the International Association of Machinists that a great deal has been gained by the adoption of the nine-hour system with ten hours' pay in a considerable number of the shops of the country, this claim is open to contradiction. If the association had been successful in all or nearly all the great machinery centers of the country they could have looked forward to a complete victory at some time in the future. As it stands they made a fight for a point which has only been carried in part. The machinists have been defeated in so many of the shops and particularly in so many of the large manufacturing centers, that such ground as they have gained is likely to be cut from under them as time develops. The machinery manufacturers who surrendered to the union at the beginning of the struggle, and not only cut down the working hours of the day, but advanced wages to the rates demanded, have now been placed in a most unsatisfactory condition in competition for business with other manufacturers who resisted the demand and finally secured a working force on much better terms. This will cause dissatisfaction on the part of the employers who yielded to the men, and a readjustment may be expected to come at the end of the working year, if it is not insisted on prior to that time. The alternative course would be for the International Association of Machinists to force another strike in the shops in which they have just been beaten, and again endeavor to impose their terms on the entire trade. This is not to be expected. The union will not attempt another fight of this kind in the near future.

A most important point in connection with the strike is the fact that the International Association of Machinists have utterly and perhaps permanently lost their standing as a respected labor organization with the large manufacturers, or with any organization of manufacturers. They have shown that they carry out agreements only when such agreements are uniformly favorable to their side. They have no hesitation in breaking agreements when such agreements appear to them to give some little advantage to the other side. This outcome of the strike will probably be deplored by those who believe in the ultimate organization of all workmen to deal with a complete organization of employers. It will, however, not be mourned by the great number of people who believe in the fairness of employers as a whole, and their disposition to treat their men humanely and with proper consideration. Employers generally are not disposed to be tyrannical, oppressive or illiberal. They will usually do more for their men when left perfectly free to act than when efforts are made to coerce them by organizations formed among their employees. The American machinery trade is in more favorable shape to-day for continued advancement in the introduction of improved methods and the betterment of the trade in every other respect than it would have been if the efforts of the International Association of Machinists had been completely success-



ful. It is well for everybody concerned, in view of what has developed, that the association have so discredited themselves.

## CORRESPONDENCE.

### The Passing of the Belgian Rod Mill.

To the Editor: I have read with much interest the criticism of Wm. Garrett on the continuous rod mills *versus* Garrett rod mills in your issue of July 25, 1901. While some of Mr. Garrett's statements are true, I think much is to be said in favor of the continuous mill. I do not know what Eastern firm is referred to, but there is only one successful firm in this line, the Morgan Construction Company of Worcester, Mass. I was employed by that firm from November 1, 1892, until February 1, 1901, as superintendent of erection. I remained with the last mill I erected for Wickwire Bros. of Cortland, N. Y., to get practical experience in operating a mill.

About 30 years ago the first mill of the strictly continuous type came from England to the Washburn & Moen Mfg. Company of Worcester, Mass. This mill was erected at the North Works and was taken in hand by Charles H. Morgan, then superintendent of the Washburn & Moen Mfg. Company, and now president of the Morgan Construction Company. He brought it from a capacity of 7 and 8 tons per turn of ten hours to 40 and 45 tons in same time.

To compare with this mill is the one I am now with, the latest improved "Morgan" type. This mill will turn out 82 tons of No. 5 size rods in eleven hours' actual running time, and it costs but 72 cents per ton for labor from the time a carload of billets arrives in the yard until a carload of rods is shipped. The actual loss by scrap on this mill for the last six months, including the starting up of a new plant, was only  $2\frac{1}{2}$  per cent. Can Mr. Garrett equal this record? I should also state that this mill is only running what rollers term a "one-bar gate." If the mill were to run a "two-bar gate" it is fair to presume that it would turn out 150 tons in the same time. In my past nine years' experience I have yet to find a so-called Garrett mill that does not cost twice as much to maintain as a Morgan mill.

Now a word on rolling rods, when they have arrived at the proper degree of heat. I think every worker of steel will agree with me that the sooner steel is worked after receiving the proper heat the better it is in every respect. But these mills have been run and can be run to-day without the cooling process referred to. It has only been within the last five years that water was used on rods after leaving the finishing rolls. This does prevent oxidation.

As to the shape of the rods, this mill has turned out and is turning out rods that will not vary three-quarters of a size from being round—not one bundle, but the turn's work—and I must say that they are superior to any Garrett mill rods I ever saw. Of all the number of wire drawers employed by Wickwire Bros., I have yet to hear one express himself in favor of the Garrett mill rod. The fact is, you are using an oval so flat that a good rod cannot be made from it. The reason for this is that the catcher must have his guides loose enough to enable him to readily "stick it in." In the continuous case the guides are quite tight and a good shaped oval is used, enabling us to readily hold them up and insure a good No. 1 round, and this is readily seen by comparison.

I think the work done in the Morgan Construction Company's shop second to none, and I was always instructed to bring out the best results even at a great expense to constructors. This, to my mind, shows that they are heart and mind devoted to making their mill the best rolling machine in the world.

F. H. PHILLIPS,

CORTLAND, N. Y., July 29, 1901.

**Drawback on Cast Iron Pipe.**—Under date of July 17 O. L. Spaulding, Assistant Secretary of the Treasury Department, has rendered the following decision: On the exportation of cast iron pipe manufactured by the Camden Iron Works, Camden, N. J., in part from imported broken cast iron scrap and domestic pig iron, a

drawback will be allowed equal in amount to the duties paid on the imported material so used, less the legal deduction of 1 per cent. The drawback entry must show the quantity of the material exported, and furthermore, in addition to the usual averments, that the exported pipe was manufactured of material and in the manner set forth in the manufacturers' sworn statement, as made from their records, which must be filed with the collector of customs at the port of exportation, and officially verified prior to the liquidation of entries by comparison of records of the manufacturers, which shall at all reasonable times be open to the inspection of customs officers. The quantity of the pipe exported shall be ascertained by the export officer. In the liquidation of the entries the basis of drawback shall not exceed 33 1-3 pounds of imported scrap to each and every 100 pounds of the exported material.

### The Pittsburgh Wire & Steel Company.

On August 14 a charter of incorporation will be asked for for the Pittsburgh Wire & Steel Company, a new concern just organized, and who purpose to build near Monongahela City, about 40 miles from Pittsburgh, rod, wire and wire nail mills, with a capacity of 400 to 500 tons per day. The incorporators of the new concern are Alexander Dempster, Thomas W. Fitch, Thomas Walker, John W. Garland and Robert Garland. Alexander Dempster is a large coal operator and capitalist in Pittsburgh. Thomas W. Fitch is now president of the Pittsburgh Steel Shafting Company. Thomas Walker is of the firm of McVay & Walker-Company, operating a foundry at Braddock. Robert W. Garland is secretary and general sales agent of the Standard Chain Company, at Pittsburgh, while John W. Garland is president of the Garland Chain Company at Rankin, Pa. Thomas W. Fitch has had a wide experience in the rod and wire business, having built the original plant of the Braddock Wire Company, at Rankin, and after leaving that concern he also built the rod and wire mills of the Pittsburgh Wire Company at Braddock. The new concern will have a capital stock of \$2,000,000—\$1,000,000 preferred and \$1,000,000 common. They are prepared to erect rod, wire and nail mills at the start out, but it is possible that a blast furnace and steel works may be added later on, but this has not been fully decided. Plans are now being drawn for the new works and the letting of contracts will begin in a short time. The Pittsburgh Wire & Steel Company will take over later on the plant of the Pittsburgh Steel Shafting Company, at Rankin, makers of steel shafting, forged shafts, cold drawn shapes, pulleys, hangers, pulley blocks and flange couplings.

**The American Malleable Casting Company.**—The American Malleable Casting Company, who are now building a large plant at Chicago Highlands, Ill., expect to be able to turn out castings about September 1. The capacity of this plant will be 20,000 tons per year. The company have secured considerable business already, which will enable them to start with a good tonnage on their books. The plant will be of the most modern type in every respect. It will be operated by electric power throughout. This power will be furnished by current generated by three 50 horse-power gasoline engines built by the Maywood Foundry & Machinery Company of Maywood, Ill. Each engine will be attached directly to a 40 kw. Northern Electric generator. They will all be connected with one switchboard, so that all the power can be concentrated or separated as desired. The company will pay special attention to railroad malleables, but will also expect to do considerable agricultural work. Chicago Highlands is a new industrial town, located a short distance from Chicago at a junction point of the Chicago & Northwestern with the Elgin, Joliet & Eastern Belt line, thus having connection with all railroads diverging from Chicago. The officers of the company are as follows: President, I. L. McCord; vice-president, L. J. Highland; secretary, H. C. Dolph; treasurer, F. E. Lonas; superintendent, H. C. Duggan. The company have established their main office in the Chamber of Commerce Building, Chicago.



# The Strike in the Sheet, Bar and Hoop Mills.

PITTSBURGH, PA., July 31, 1901.—(By Telegraph).—The General Executive Committee of the Amalgamated Association was in session in this city Tuesday and again to-day considering the proposition made by J. P. Morgan to President Shaffer in New York last Saturday. Much has been printed in the daily press about this proposition or ultimatum, as it has been termed, which is untrue. As before stated in these columns, the efforts of M. M. Garland, an ex-president of the Amalgamated, to bring about another conference were unsuccessful. When this was made known to the Amalgamated officials, President Shaffer, without instructions from any one, accompanied by John Williams, secretary, went to New York to see Mr. Morgan and make out the best possible terms which the United States Steel Corporation would grant with a view of ending the strike.

This resulted in Mr. Morgan, together with C. M. Schwab, drawing up a proposition to the effect that the United States Steel Corporation would agree to sign the scale for all union mills only, the nonunion mills to be run as heretofore, without the scale being signed for them. In addition it was stipulated in Mr. Morgan's proposition that all union mills should be open—that is, that nonunion men should be allowed to work in these mills without hindrance in any way from the Amalgamated. This latter clause in the proposition is really the bone of contention with the Amalgamated and may prevent a settlement of the strike. It is not true that the United States Steel Corporation agreed to sign the scale for McKeesport, Wellsville, Old Meadow and Scottsdale mills, but, on the contrary, they are to be operated nonunion, as heretofore.

The proposition made by Mr. Morgan to the Amalgamated is not by any means as favorable as the final proposition made by Warner Arms and others at the last conference held in Pittsburgh on Saturday night, July 13. Had it been as favorable it would have been accepted at once by the Amalgamated, as President Shaffer and his followers realize that the Amalgamated Association is doomed to certain defeat unless the strike is quickly settled. President Shaffer personally is in favor of accepting Mr. Morgan's proposition, but in this he is opposed by a majority of members in the Executive Committee.

At this writing the chances for a settlement of the strike do not seem favorable, but so much pressure is being brought to bear on both sides that a compromise may be reached and the strike declared off. If the United States Steel Corporation would make as liberal an offer to the Amalgamated as was made in conference the strike would be declared off at once. If that concern refuse to change Mr. Morgan's proposition, then a long and bitter fight seems likely. The strike may extend to the railroads, to some of the steel plants, to some of the blast furnaces, and a great deal of trouble would follow. The business interests of the country would be seriously affected, and it is sincerely hoped the strike may be speedily settled.

At 3 p.m. the Executive Committee of the Amalgamated Association is still in session, but unofficial reports are that Mr. Morgan's proposition, unless made more liberal to the Amalgamated Association, will not be accepted and the strike will go on.

About 30 men employed in the Lower Union Mills of the Carnegie Steel Company in Pittsburgh have gone on a strike, but the trouble has nothing to do with the sheet and hoop mill strike.

## Steering Knuckles and Axle Ends.

The Billings & Spencer Company of Hartford, Conn., are notifying their customers in the automobile trade in general that they have found that their steering knuckles and axle ends, which have been on the market for the past year and are now in general use, were an infringement of U. S. Letters Patent No. 442,663, issued December 16, 1890. The exclusive right and license for

automobile purposes is held by the Electric Vehicle Company of New York under this patent, the title of which rests with the American Bicycle Company of New York.

In view of their extensive sales of these knuckles and axle ends for automobile steering equipment, the Billings & Spencer Company desired to be in a position to continue to offer them to their customers, and therefore entered into negotiations which have finally resulted in their acquiring from the Electric Vehicle Company a license for the manufacture and sale of forgings which constitute parts of the invention covered by Letters Patent No. 442,663. They now offer to automobile makers who are licensed to manufacture and sell in their vehicles steering equipment as covered by the above mentioned patent steering knuckle and axle end forgings of the form which they have advertised and sold, or any designs of such parts of steering wheel connections as come within the terms of the above patents.

Owing to the conditions as outlined above they withdraw all prices and quotations heretofore given on steering knuckles and front axle ends, and will quote new prices. They also call the attention of their customers to the fact that if these forgings are purchased from them, in view of the royalty paid by them, there will be a deduction from the full license fee required of the vehicle manufacturer.

## A Steel Casting Consolidation.

The nucleus of a new trust or consolidation is the American Steel Casting Company, who claim the distinction of having been the first of the so-called trusts. They were formed five or six years ago by the amalgamation of interests of the principal steel casting plants in existence at that time. The American Steel Casting Company have been operated successfully since their formation and have paid handsome dividends, in addition to enlarging and improving all of their plants. The principal plant and home office have been located at Chester, Pa., with Daniel Egan as president. Their plants included the one at Chester and others at Norristown, Pa.; Sharon, Pa.; Pittsburgh, Pa.; Alliance, Ohio, and Syracuse, N. Y.

Since the formation of this company three large concerns have been built—one at St. Louis, one at Franklin, Pa., and another at Chicago—which have grown in importance to such an extent as to be deemed worthy of absorption. The only steel casting plant of much importance which is not included in the proposed combination is the Latrobe Steel & Coupler Company, at Melrose Park, the scene of the present labor disturbance.

The list of companies known to be included in the scheme is as follows, according to the *Chicago Chronicle*:

American Steel Casting Company.  
The American Steel Foundry Company, St. Louis.  
Shickle, Harrison & Howard, St. Louis.  
Scullin & Gallagher Company, St. Louis.  
The Sargent Company, Chicago.  
Franklin Steel Casting Company, Franklin, Pa.  
Seaboard Steel Casting Company, Chester, Pa.

Similar steel plants are located at Milwaukee, Wis.; Lima, Ohio; Muncie, Ind.; Buffalo, N. Y.; Chester, Pa., and Sharon, Pa., and these may be taken in. It is reported that the Otis Steel Company of Cleveland are also to join the new consolidation.

The capital of the new concern is to be upward of \$15,000,000, with the prospect that the smaller plants will be whipped into line and that amount increased considerably later on. The Board of Directors as proposed includes Daniel Egan, president of the American Steel Casting Company, Philadelphia; Rolla Wells, Mayor of St. Louis and president of the American Steel Foundry Company; Gen. Charles Mailler, president of the Franklin Steel Casting Company, Franklin, Pa., and W. D. Sargent, president of the Sargent Company, Chicago. The principal output of these concerns lies in patented articles, such as car bolsters, car couplers, brake shoes, anchors, locomotive parts and many other articles used by railroads and in marine construction work.

ful. It is well for everybody concerned, in view of what has developed, that the association have so discredited themselves.

## CORRESPONDENCE.

### The Passing of the Belgian Rod Mill.

To the Editor: I have read with much interest the criticism of Wm. Garrett on the continuous rod mills *versus* Garrett rod mills in your issue of July 25, 1901. While some of Mr. Garrett's statements are true, I think much is to be said in favor of the continuous mill. I do not know what Eastern firm is referred to, but there is only one successful firm in this line, the Morgan Construction Company of Worcester, Mass. I was employed by that firm from November 1, 1892, until February 1, 1901, as superintendent of erection. I remained with the last mill I erected for Wickwire Bros. of Cortland, N. Y., to get practical experience in operating a mill.

About 30 years ago the first mill of the strictly continuous type came from England to the Washburn & Moen Mfg. Company of Worcester, Mass. This mill was erected at the North Works and was taken in hand by Charles H. Morgan, then superintendent of the Washburn & Moen Mfg. Company, and now president of the Morgan Construction Company. He brought it from a capacity of 7 and 8 tons per turn of ten hours to 40 and 45 tons in same time.

To compare with this mill is the one I am now with, the latest improved "Morgan" type. This mill will turn out 82 tons of No. 5 size rods in eleven hours' actual running time, and it costs but 72 cents per ton for labor from the time a carload of billets arrives in the yard until a carload of rods is shipped. The actual loss by scrap on this mill for the last six months, including the starting up of a new plant, was only 2½ per cent. Can Mr. Garrett equal this record? I should also state that this mill is only running what rollers term a "one-bar gate." If the mill were to run a "two-bar gate" it is fair to presume that it would turn out 150 tons in the same time. In my past nine years' experience I have yet to find a so-called Garrett mill that does not cost twice as much to maintain as a Morgan mill.

Now a word on rolling rods, when they have arrived at the proper degree of heat. I think every worker of steel will agree with me that the sooner steel is worked after receiving the proper heat the better it is in every respect. But these mills have been run and can be run to-day without the cooling process referred to. It has only been within the last five years that water was used on rods after leaving the finishing rolls. This does prevent oxidation.

As to the shape of the rods, this mill has turned out and is turning out rods that will not vary three-quarters of a size from being round—not one bundle, but the turn's work—and I must say that they are superior to any Garrett mill rods I ever saw. Of all the number of wire drawers employed by Wickwire Bros., I have yet to hear one express himself in favor of the Garrett mill rod. The fact is, you are using an oval so flat that a good rod cannot be made from it. The reason for this is that the catcher must have his guides loose enough to enable him to readily "stick it in." In the continuous case the guides are quite tight and a good shaped oval is used, enabling us to readily hold them up and insure a good No. 1 round, and this is readily seen by comparison.

I think the work done in the Morgan Construction Company's shop second to none, and I was always instructed to bring out the best results even at a great expense to constructors. This, to my mind, shows that they are heart and mind devoted to making their mill the best rolling machine in the world.

F. H. PHILLIPS.

CORTLAND, N. Y., July 29, 1901.

**Drawback on Cast Iron Pipe.**—Under date of July 17 O. L. Spaulding, Assistant Secretary of the Treasury Department, has rendered the following decision: On the exportation of cast iron pipe manufactured by the Camden Iron Works, Camden, N. J., in part from imported broken cast iron scrap and domestic pig iron, a

drawback will be allowed equal in amount to the duties paid on the imported material so used, less the legal deduction of 1 per cent. The drawback entry must show the quantity of the material exported, and furthermore, in addition to the usual averments, that the exported pipe was manufactured of material and in the manner set forth in the manufacturers' sworn statement, as made from their records, which must be filed with the collector of customs at the port of exportation, and officially verified prior to the liquidation of entries by comparison of records of the manufacturers, which shall at all reasonable times be open to the inspection of customs officers. The quantity of the pipe exported shall be ascertained by the export officer. In the liquidation of the entries the basis of drawback shall not exceed 33 1-3 pounds of imported scrap to each and every 100 pounds of the exported material.

### The Pittsburgh Wire & Steel Company.

On August 14 a charter of incorporation will be asked for the Pittsburgh Wire & Steel Company, a new concern just organized, and who purpose to build near Monongahela City, about 40 miles from Pittsburgh, rod, wire and wire nail mills, with a capacity of 400 to 500 tons per day. The incorporators of the new concern are Alexander Dempster, Thomas W. Fitch, Thomas Walker, John W. Garland and Robert Garland. Alexander Dempster is a large coal operator and capitalist in Pittsburgh. Thomas W. Fitch is now president of the Pittsburgh Steel Shafting Company. Thomas Walker is of the firm of McVay & Walker-Company, operating a foundry at Braddock. Robert W. Garland is secretary and general sales agent of the Standard Chain Company, at Pittsburgh, while John W. Garland is president of the Garland Chain Company at Rankin, Pa. Thomas W. Fitch has had a wide experience in the rod and wire business, having built the original plant of the Braddock Wire Company, at Rankin, and after leaving that concern he also built the rod and wire mills of the Pittsburgh Wire Company at Braddock. The new concern will have a capital stock of \$2,000,000—\$1,000,000 preferred and \$1,000,000 common. They are prepared to erect rod, wire and nail mills at the start out, but it is possible that a blast furnace and steel works may be added later on, but this has not been fully decided. Plans are now being drawn for the new works and the letting of contracts will begin in a short time. The Pittsburgh Wire & Steel Company will take over later on the plant of the Pittsburgh Steel Shafting Company, at Rankin, makers of steel shafting, forged shafts, cold drawn shapes, pulleys, hangers, pulley blocks and flange couplings.

**The American Malleable Casting Company.**—The American Malleable Casting Company, who are now building a large plant at Chicago Highlands, Ill., expect to be able to turn out castings about September 1. The capacity of this plant will be 20,000 tons per year. The company have secured considerable business already, which will enable them to start with a good tonnage on their books. The plant will be of the most modern type in every respect. It will be operated by electric power throughout. This power will be furnished by current generated by three 50 horse-power gasoline engines built by the Maywood Foundry & Machinery Company of Maywood, Ill. Each engine will be attached directly to a 40 kw. Northern Electric generator. They will all be connected with one switchboard, so that all the power can be concentrated or separated as desired. The company will pay special attention to railroad malleables, but will also expect to do considerable agricultural work. Chicago Highlands is a new industrial town, located a short distance from Chicago at a junction point of the Chicago & Northwestern with the Elgin, Joliet & Eastern Belt line, thus having connection with all railroads diverging from Chicago. The officers of the company are as follows: President, I. L. McCord; vice-president, L. J. Highland; secretary, H. C. Dolph; treasurer, F. E. Lonas; superintendent, H. C. Duggan. The company have established their main office in the Chamber of Commerce Building, Chicago.



## The Strike in the Sheet, Bar and Hoop Mills.

PITTSBURGH, PA., July 31, 1901.—(By Telegraph).—The General Executive Committee of the Amalgamated Association was in session in this city Tuesday and again to-day considering the proposition made by J. P. Morgan to President Shaffer in New York last Saturday. Much has been printed in the daily press about this proposition or ultimatum, as it has been termed, which is untrue. As before stated in these columns, the efforts of M. M. Garland, an ex-president of the Amalgamated, to bring about another conference were unsuccessful. When this was made known to the Amalgamated officials, President Shaffer, without instructions from any one, accompanied by John Williams, secretary, went to New York to see Mr. Morgan and make out the best possible terms which the United States Steel Corporation would grant with a view of ending the strike.

This resulted in Mr. Morgan, together with C. M. Schwab, drawing up a proposition to the effect that the United States Steel Corporation would agree to sign the scale for all union mills only, the nonunion mills to be run as heretofore, without the scale being signed for them. In addition it was stipulated in Mr. Morgan's proposition that all union mills should be open—that is, that nonunion men should be allowed to work in these mills without hindrance in any way from the Amalgamated. This latter clause in the proposition is really the bone of contention with the Amalgamated and may prevent a settlement of the strike. It is not true that the United States Steel Corporation agreed to sign the scale for McKeesport, Wellsville, Old Meadow and Scottsdale mills, but, on the contrary, they are to be operated nonunion, as heretofore.

The proposition made by Mr. Morgan to the Amalgamated is not by any means as favorable as the final proposition made by Warner Arms and others at the last conference held in Pittsburgh on Saturday night, July 13. Had it been as favorable it would have been accepted at once by the Amalgamated, as President Shaffer and his followers realize that the Amalgamated Association is doomed to certain defeat unless the strike is quickly settled. President Shaffer personally is in favor of accepting Mr. Morgan's proposition, but in this he is opposed by a majority of members in the Executive Committee.

At this writing the chances for a settlement of the strike do not seem favorable, but so much pressure is being brought to bear on both sides that a compromise may be reached and the strike declared off. If the United States Steel Corporation would make as liberal an offer to the Amalgamated as was made in conference the strike would be declared off at once. If that concern refuse to change Mr. Morgan's proposition, then a long and bitter fight seems likely. The strike may extend to the railroads, to some of the steel plants, to some of the blast furnaces, and a great deal of trouble would follow. The business interests of the country would be seriously affected, and it is sincerely hoped the strike may be speedily settled.

At 3 p.m. the Executive Committee of the Amalgamated Association is still in session, but unofficial reports are that Mr. Morgan's proposition, unless made more liberal to the Amalgamated Association, will not be accepted and the strike will go on.

About 30 men employed in the Lower Union Mills of the Carnegie Steel Company in Pittsburgh have gone on a strike, but the trouble has nothing to do with the sheet and hoop mill strike.

### Steering Knuckles and Axle Ends.

The Billings & Spencer Company of Hartford, Conn., are notifying their customers in the automobile trade in general that they have found that their steering knuckles and axle ends, which have been on the market for the past year and are now in general use, were an infringement of U. S. Letters Patent No. 442,663, issued December 16, 1890. The exclusive right and license for

automobile purposes is held by the Electric Vehicle Company of New York under this patent, the title of which rests with the American Bicycle Company of New York.

In view of their extensive sales of these knuckles and axle ends for automobile steering equipment, the Billings & Spencer Company desired to be in a position to continue to offer them to their customers, and therefore entered into negotiations which have finally resulted in their acquiring from the Electric Vehicle Company a license for the manufacture and sale of forgings which constitute parts of the invention covered by Letters Patent No. 442,663. They now offer to automobile makers who are licensed to manufacture and sell in their vehicles steering equipment as covered by the above mentioned patent steering knuckle and axle end forgings of the form which they have advertised and sold, or any designs of such parts of steering wheel connections as come within the terms of the above patents.

Owing to the conditions as outlined above they withdraw all prices and quotations heretofore given on steering knuckles and front axle ends, and will quote new prices. They also call the attention of their customers to the fact that if these forgings are purchased from them, in view of the royalty paid by them, there will be a deduction from the full license fee required of the vehicle manufacturer.

### A Steel Casting Consolidation.

The nucleus of a new trust or consolidation is the American Steel Casting Company, who claim the distinction of having been the first of the so-called trusts. They were formed five or six years ago by the amalgamation of interests of the principal steel casting plants in existence at that time. The American Steel Casting Company have been operated successfully since their formation and have paid handsome dividends, in addition to enlarging and improving all of their plants. The principal plant and home office have been located at Chester, Pa., with Daniel Egan as president. Their plants included the one at Chester and others at Norristown, Pa.; Sharon, Pa.; Pittsburgh, Pa.; Alliance, Ohio, and Syracuse, N. Y.

Since the formation of this company three large concerns have been built—one at St. Louis, one at Franklin, Pa., and another at Chicago—which have grown in importance to such an extent as to be deemed worthy of absorption. The only steel casting plant of much importance which is not included in the proposed combination is the Latrobe Steel & Coupler Company, at Melrose Park, the scene of the present labor disturbance.

The list of companies known to be included in the scheme is as follows, according to the *Chicago Chronicle*:

American Steel Casting Company.  
The American Steel Foundry Company, St. Louis.  
Shickle, Harrison & Howard, St. Louis.  
Scullin & Gallagher Company, St. Louis.  
The Sargent Company, Chicago.  
Franklin Steel Casting Company, Franklin, Pa.  
Seaboard Steel Casting Company, Chester, Pa.

Similar steel plants are located at Milwaukee, Wis.; Lima, Ohio; Muncie, Ind.; Buffalo, N. Y.; Chester, Pa., and Sharon, Pa., and these may be taken in. It is reported that the Otis Steel Company of Cleveland are also to join the new consolidation.

The capital of the new concern is to be upward of \$15,000,000, with the prospect that the smaller plants will be whipped into line and that amount increased considerably later on. The Board of Directors as proposed includes Daniel Egan, president of the American Steel Casting Company, Philadelphia; Rolla Wells, Mayor of St. Louis and president of the American Steel Foundry Company; Gen. Charles Mailler, president of the Franklin Steel Casting Company, Franklin, Pa., and W. D. Sargent, president of the Sargent Company, Chicago. The principal output of these concerns lies in patented articles, such as car bolsters, car couplers, brake shoes, anchors, locomotive parts and many other articles used by railroads and in marine construction work.



Under the present arrangement it is proposed that the concerns license one another to manufacture under any of these patents and distribute the territory according to geographical location, much after the plan pursued by the American Bridge Company.

In this manner it is thought prices can be controlled, the cost of maintaining expensive selling departments avoided and cost of production materially cheapened. It will also eliminate the element of varying prices and competition.

### The Molders' Strike.

CHICAGO, ILL., July 31, 1901.—(By Telegraph.)—The molders' strike has not yet been settled, but it is believed that within a week the men will be at work again on the terms offered by the employers. The molders have already accepted these terms and returned to work in the foundries of the Western Foundry Company, Hansell Elcock Foundry Company, Butler Street Foundry & Iron Company, Vanderpoel Company, Dearborn Foundry Company and Pyott Foundry Company. The molders of the Fraser & Chalmers Works held a meeting yesterday and decided to return to work on Thursday morning. The foundrymen who surrendered to their men made a contract with them that the former should get the advantage of any terms secured by the National Founders' Association. The secretary of the National Founders' Association has been in Chicago for the past week and has been actively at work furthering the interests of the organization. Martin Fox, president of the Iron Molders' Union of North America, is expected in Chicago to-day and will do all in his power to convince molders of the necessity of standing by the agreement of his union with the National Founders' Association.

The following is the exact wording of the agreement entered into between the National Founders' Association and the Iron Molders' Union of North America, with reference to the wage rates to be paid to molders in the city of Chicago:

"Resolved, That beginning with July 1, 1901, the minimum wages for floor molders in the city of Chicago and vicinity will be \$2.85 per day, and for bench molders \$2.65 per day."

This agreement will be observed in all its provisions by the following concerns as well as a number of others, whose names for certain reasons are not inserted:

|                                   |                                |
|-----------------------------------|--------------------------------|
| Adams & Westlake Co.              | Link Belt Machinery Co.        |
| Aermotor Co.                      | Maywood Foundry & Machine Co.  |
| Brown Bros. Mfg. Co.              | Owens Brass and Copper Works.  |
| A. Bolter's Sons.                 | A. Plamondon Mfg. Co.          |
| Buda Foundry & Mfg. Co.           | Preble Machine Co.             |
| Butler Street Foundry & Iron Co.  | Henry E. Pridmore.             |
| Chicago Ornamental Iron Co.       | Pyott Foundry Co.              |
| Cleveland & Barr.                 | John Ramsey.                   |
| Dearborn Foundry Co.              | The Sargent Co.                |
| R. M. Eddy Foundry Co.            | So. Halsted Street Iron Works. |
| Wm. Ferguson Foundry Co.          | Tarrant Foundry Co.            |
| James Frake.                      | Union Foundry Works.           |
| Francis & Nygren Foundry Co.      | Vanderpoel Co.                 |
| Fraser & Chalmers.                | Vierling, McDowell & Co.       |
| Garden City Fan Co.               | Walburn, Swenson Co.           |
| Gates Iron Works.                 | Webster Mfg. Co.               |
| Hansell Elcock Foundry Co.        | Wier & Craig Mfg. Co.          |
| Holmes Pyott & Co.                | Western Foundry Co.            |
| W. A. Jones Foundry & Machine Co. | Whiting Foundry Equipment Co.  |
| W. D. Kent Iron Co.               | Winslow Bros. Co.              |

ST. LOUIS, Mo., July 29, 1901.

No molders' strike will take place in St. Louis this year. Arbitration has again taken the place of the strike. The above fact is the outcome of the successful settlement of the differences that have been pending in this city since July 1 between the local Molders' Union and the St. Louis Founders' Association.

This is the second time this year that strikes have been averted in the metal trades in this city through arbitration, and it surely appears that there is a common ground upon which the laborer and the capitalist can stand, provided both have a desire to understand one another. That desire seems to exist in this city, for when the employers denied the workmen a nine-hour

work day and gave them their reasons, the men were perfectly satisfied and agreed to continue the ten-hour day.

The arbitration meeting referred to above was held in this city last Wednesday evening. The questions in dispute were settled by a conference committee, consisting of representatives from the St. Louis Founders' Association and the Iron Molders' Union, No. 59. In addition to the conference committee, the Executive Board of the local union, consisting of some 25 molders, being one molder from each shop, was present but without voice or vote in the proceedings. The manufacturers were also largely represented by employers not members of the Conference Committee.

The different propositions were debated for some three hours, during which time the wage question, always a point for differences, was given careful consideration. The molders have all along contended that the present rate of \$2.50 per day for bench molders and \$2.75 per day for floor molders should be increased, so that both classes of labor receive \$3 per day. A compromise was, however, arrived at and an agreement was entered into and signed by the official representatives of both sides. This marks the commencement of the fourth year during which such a document has served to keep peace in the foundries of this city. The agreement in full is as follows:

#### Molders' Agreement in St. Louis.

"This agreement entered into at St. Louis, Mo., this 24th day of July, 1901, between the St. Louis Founders' Association and the Iron Molders' Union, No. 59, in consideration of the covenants and promises severally to be performed by the parties hereto, witnesseth:

"1. That, beginning with July 25, 1901, the minimum wages for molders in the city of St. Louis shall be as follows: For floor molders, \$2.85 per day of ten hours, and for bench molders, \$2.65 per day of ten hours.

"2. That prices to be paid for piece work shall be fixed by mutual agreement between employer and the workman or workmen who perform the work. Such prices shall allow a journeyman molder to earn at least the minimum wages for the class to which he belongs.

"3. That all overtime, except in cases of accident or causes beyond control, shall be paid for at the rate of time and one-half, with double time for Sundays and the following legal holidays: Fourth of July, Labor Day, Thanksgiving Day and Christmas. Overtime exceeding 30 minutes, in cases of accident or causes beyond control, shall be paid for at the single time rate, provided, however, that in order to draw overtime the molders must be willing to do additional work at molding for a period corresponding to such overtime.

"4. That this agreement shall remain in force to July 1, 1902, and that a conference of the parties hereto shall be held on or about June 1, 1902, to arrange for the modification or extension of the same.

"5. That during the life of this agreement no strike shall be ordered or sanctioned by the union, nor any lockout ordered or sanctioned by the association in the shop of any member of the association, for any reason whatever, until the matter in dispute has been submitted to a committee of investigation or arbitration, to be composed of three members to be appointed by the association and three members to be appointed by the union. The decision of a majority of said committee shall be rendered within five days from the date upon which the question in dispute shall have been submitted to it and shall be considered final, in so far as the future action of the respective organizations is concerned."

The above agreement will be binding upon the following 25 firms, members of the St. Louis Founders' Association:

Aetna Iron Works.  
Carondelet Foundry Company.  
Christopher & Simpson Architectural Iron & Foundry Company.  
Green's Car Wheel Company.  
Kingsland Mfg. Company.  
Magnetite Foundry Company.  
Medart Patent Pulley Company.  
Missouri Malleable Iron Company.  
Plueger & Henger Mfg. Company.  
Shickle, Harrison & Howard Iron Company.  
St. Louis Iron & Machine Works.  
Union Iron & Foundry Company.

American Car & Foundry Company.  
 Charter Oak Stove & Range Company.  
 Geo. J. Fritz Foundry & Machine Company.  
 Fulton Iron Works.  
 Gerst Bros. Mfg. Company.  
 Globe Iron & Foundry Company.  
 John C. Kupferle Company.  
 St. Louis Car Wheel Company.  
 South St. Louis Foundry Company.  
 Western Foundry & Sash Weight Company.  
 Whitman Agricultural Company.  
 Arthur Fritsch Foundry & Mach. Company.  
 St. Louis Iron & Steel Foundry Company.

### Pacific Coast News.

SAN FRANCISCO, CAL., July 22, 1901.—Despite the machinists' strike trade, as far as the Clearing House exchanges indicate, is in a very good condition, those for the week ending Saturday, July 20 being over 20 per cent. in excess of those for the corresponding time in 1900. So it has been for week after week, although not quite so pronounced as during the past one. Of course, we have the very best prospects that we have had in any year for a long time. We have full crops of wheat, barley and other cereals, and a good, although not a full, crop of fruit. Our oil resources are only just beginning to be known. If wheat prices were good we would have an exceptionally prosperous year. As it is we will have quite a good business year. The only thing that mars it is the machinists' strike, and the one just inaugurated of the freight teamsters.

#### The Machinists' Strike.

The machinists' strike is still in *statu quo ante bellum*—that is to say, both parties are in nominally the same position, but this is in appearance only. Many of the original strikers have gone back to work—a batch of 25 to one of our large foundries the other day. All are getting in what nonunion help they can. The number at work now is given at 3000, including apprentices, handy men, &c. They are still, of course, in a very unsatisfactory condition, but some of the most pressing part of the work has been got rid of. Still the strike hangs over the industry of the city like a pall. But there is a more encouraging side to it. The other day the employees of the Judson Iron Works, in Oakland, 250 in number, went back to work. They had been promised financial help by the machinists, which had not been forthcoming until the eleventh hour, and then was miserably inadequate. So the men concluded there was nothing in it for them and returned to work, sadder but wiser men. It is the opinion of your correspondent that many more will follow the example already noted, and that no long time will have elapsed ere the San Francisco machinists' strike will be reckoned a thing of the past. It may be a long time yet ere the local organization acknowledges officially that all is over, but it will be over just the same. At the same time a landslide may occur any day, as the managers of the iron works now refuse point blank to make concessions of any kind to their striking employees. The result of the experiment has, therefore, been disastrous to those who expected to profit by it, and it has been of benefit to none. It has disturbed the harmony that should exist between employer and employed, and has undoubtedly been of more or less benefit to our trade rivals.

#### Freight Handlers' Strike.

And now about 2000 freight teamsters have struck because one of the draying firms delivered some express parcels for a nonunion firm. It threatens to involve the packers and warehousemen and probably the longshoremen and union sailors, and if so would take in 16,000 men. It would almost bring the trade of the port to a full stop. In fact, this is the case at present with the wheat trade, which is tied up by the strike of the freight handlers and not a grain ship has cleared for more than a week. It would paralyze for a while the hardware and machinery trade, as well as every other, and that including the export and internal trade is very large. And although barely a day has elapsed in the strike, the wharves are all piled up with merchandise waiting to be removed. In another day or two it will be impossi-

ble to pile up any more freight. The expressmen are being pressed into service, but they can make very little impression on it and until the strike ceases and determines of itself, or until it is broken, no wholesale trade of any magnitude can be done.

The first vessel of a direct line between this city and the Philippines, the "Algoa," cleared the other day with a moderate sized cargo. She will be followed by others, and is the forerunner of a great trade between this city and the island group. This is the shortest way, and the line should be well patronized. Instead of one steamer a month to South American ports we have now one almost every week. Flour is as yet the principal article shipped, but others will follow. J. O. L.

### The Edison Storage Battery.

Thomas A. Edison has directed that his new storage battery be withdrawn from any competition with other storage batteries at the Pan-American Exposition, and the cell that is now on exhibition there is at the exposition with that distinct understanding. When this cell was sent to the Pan-American it was not Mr. Edison's intention that it should be entered competitively with the other types of batteries, inasmuch as they were not in position to show it working practically. Before the exposition closes it is the Edison Company's intention to exhibit some of these new batteries complete and in actual operation, so as to show their superiority over anything of the kind on the market to-day.

The battery cell that is now on exhibition is 5 inches wide, 1½ inches deep and 12 inches high from the base to the terminals. Its capacity is ⅛ horse-power, 100 ampere hours, and its weight is 5¾ pounds. The cell is nickel plated, while the insulation is perforated hard rubber 64-100 inch thick. It has eight plates or grids, each containing 24 pockets. The thickness of the complete plate is 1-10 inch. The charging rate is 1.8 volts. The pockets containing the compound are 3-1000 inch thick, of nickel plated perforated crucible steel. The negative plate is nickel and the positive plate iron. There is no alkaline solution in the cell on exhibition. This fluid is not an element of the battery, simply a conductor. In the regular construction of the batteries it is estimated that 60 plates constitute 1 horse-power, each plate weighing 1 pound.

The cell now on exhibition at the Pan-American Exposition daily commands increased attention, showing that many are interested in this latest invention of Mr. Edison. D.

**The Pittsburgh Spiral Wire Hoop Company.**—The Pittsburgh Spiral Wire Hoop Company of Pittsburgh will apply for a charter August 22. The incorporators are Edward B. Alsop, George V. Willson, Ralph B. Binns and Hiram Dupuy, all of whom are connected with Hussey, Binns & Co. of Pittsburgh. The Pittsburgh Spiral Wire Hoop Company have been making wire hoops in a small experimental way for some time. The hoops have proven to be a success and the company propose to enlarge their operations and build a new works in the Pittsburgh district.

The Pennsylvania Railroad Company have placed orders for 2000 box cars of 50 tons capacity each, the largest box cars now in use being 40 tons. The order was divided. The Pressed Steel Car Company secured a contract to build 1250 cars and the American Car & Foundry Company 750 cars. They are to have steel underframes and wooden sides, and have as great capacity as the all steel mineral cars now in service on many railroads.

The Security Investment Company of Pittsburgh, an identified interest of the Westinghouse Electric & Mfg. Company, have bought a site of land containing 220 acres, located near Stewart's Station, on the Pennsylvania Railroad. This land will be improved by the Security Investment Company, and much of it will be used as sites for homes for Westinghouse employees.



## MANUFACTURING.

### Iron and Steel.

The Republic Iron & Steel Company have decided to erect an eight-inch continuous guide mill at the Brown-Bonnell plant, Youngstown, Ohio, adjoining the new billet mill which is being installed. The billet mill will take blooms from the present blooming mill and reduce the section to 1 to 1 3/4 inches, in which shape they will go to the new guide mill. The present foundry will be removed in order to make room for the new mill and will be enlarged at the same time.

The Stanyon-Miller Engineering Company, Empire Building, Pittsburgh, builders of wire nail plants, galvanizing plants, nail machines and barb wire machines, are negotiating for the building of large rod and wire mills in the vicinity of Louisville, Ky. The proposed plant is to have a daily capacity of about 500 tons of rods, wire, wire nails, fencing wire and staples. Plans for this new project have not as yet been completed, but it is said there is a fair prospect of the works being built.

The works of the Atlantic Tube Company, at Beaver Falls, Pa., will be offered for sale by order of the receiver on August 6. The plant makes seamless tubes and it is probable it will be bought in by the bondholders.

The Pittsburgh Seamless Tube Company of Pittsburgh will apply for a charter on August 16. The concern propose to build a works in that city for the making of steel tubes.

The Cleveland-Cliffs Iron Company are pushing work on the new charcoal blast furnace which they are erecting in North Marquette, Mich. The foundations of some of the buildings are completed and much progress has been made in preparing for others.

The Northumberland Iron & Nail Works, Northumberland, Pa., are putting in a new ore grinder, to be driven by an independent engine, also a new set of puddle rolls. The puddle mill is running full handed night and day.

The Cohoes Rolling Mill Company, recently incorporated, have purchased the entire business and plant of the firm known as Morrison, Colwell & Page, at Cohoes, N. Y. The plant consists of four trains of rolls—namely, one 10-inch, one 16-inch and two 21-inch, and the product is refined bar and skelp iron. The capacity of the mill is about 30,000 tons per year. S. T. Page is vice-president.

The Alan Wood Company of Conshohocken, Pa., have purchased the Dr. Freedley farm, near the limits of that borough, for \$50,000. It is probable that upon this site the company will erect a new open hearth steel plant.

The puddlers of the Penn Iron Works of Lancaster, Pa., are out on a strike for \$4 per ton.

George J. Humbert, president of the Aluminum Iron & Steel Coating Company, the Baldwin Automobile Mfg. Company and formerly district manager of the American Tin Plate Company at Connellsville, Pa., also the builder of the Humbert plant of that concern, is at the head of a movement to erect a ten-mill tin plate plant at South Connellsville.

The Labelle Iron Works have changed the name of their furnace at Steubenville, Ohio, from "Jefferson" to "Labelle."

No. 2 stack of the National Steel Company, at Bellaire, is being relined, and it will start in August. One of the two alternate stacks of the National Steel Company, at Sharon, Pa., may be dismantled.

One of the three Isabella furnaces of the American Steel Hoop Company, at Etna, near Pittsburgh, which is being rebuilt and enlarged, is about finished, and the stack will start in August. When this stack resumes blast it is likely one of the other two will be blown out to be rebuilt and enlarged.

Furnace B of the National Tube Company, at McKeesport, which is being rebuilt and enlarged, will be started in August.

The Sharon Steel Company, Sharon, Pa., will have their blast furnace in operation early in September. It is expected to turn out from 400 to 500 tons per day.

The United States Steel Corporation have divided the Bessemer steel plants owned by the National Steel Company into three districts, viz., the Youngstown, Bellaire and New Castle districts. The Youngstown district will be under the management of Thomas McDonald, who has had charge of the Ohio Works ever since they were built. The New Castle district will be in charge of John Reis, and the Bellaire district will be managed by A. B. Carter, who for many years was with the Bellaire Steel Company.

Mattie Furnace, of the Girard Iron Company, at Girard, Ohio, which went out June 7 for repairs and relining, will blow in again about September 1.

The recent increase in capital stock of the Youngstown Iron Sheet & Tube Company of Youngstown, Ohio, from \$1,000,000 to \$2,000,000, was in order to have money to erect an open hearth steel plant, should the concern find, later on, that it is desirable to do so.

The Jackson Iron & Tin Plate Company have been incorporated at Clarksburg, W. Va., with capital stock of \$300,000, by C. C. Moore of Columbus, Ohio; Col. T. Moore Jackson, Dr. Flem-

ing Howell, C. S. Sand, Lyman S. Horner and others, for the erection of an eight-mill tin plate plant. Work of construction, it is stated, will be commenced at once.

### General Machinery.

The Stillwell-Bierce & Smith-Valle Company of Dayton, Ohio, are getting out an extensive water wheel outfit for the Brownville Board Company, Brownville, N. Y. The order comprises four pairs of 33-inch improved cylinder gate Victor turbines, each pair mounted horizontally on a steel center discharge case. Each pair under 20 feet working head will develop 400 horsepower. The wheels will set in an open stone dam. The job also includes draft tubes, wall plates for stuffing boxes, &c.

The Jeanesville Iron Works Company, Jeanesville, Pa., are at present building an addition to their erecting room, which will increase its floor capacity 25 per cent. They have during this year installed about a dozen new machines of the most modern type. On their books they now have orders for 51 pumps. One of the most notable of these is a triple expansion pump for the Acadia Coal Company, Limited, Stellarton, Nova Scotia. The capacity will be 1,500,000 gallons per day, the vertical lift being 1600 feet through 4500 feet of eight-inch column pipe. They have now ready for shipment a 6,000,000-gallon capacity triple expansion pump for the Springbrook Water Supply Company, Wilkes-Barre, Pa. This pump is fitted with the pneumatic packing manufactured by the International Packing Company, Scranton, Pa., the special advantages of which are greater working efficiency and great saving in expense. The company are making a specialty of manufacturing wood lined pumps to resist acid mine water and have a number of this class to build.

Curry & Vannan, Danville, Pa., are now building a set of planishing rolls for the Danville Bessemer Company's shovel works, and also a set of tang rolls for forming socket for handles in shovels. They have further rebuilt for the company two rail strengthening presses into shovel presses, besides furnishing shafting, pulleys, hangers, &c., and are now changing punching machines formerly used for rails into punching machines for shovels. They have just shipped to the Lukens Iron & Steel Company, Coatesville, Pa., a set of rolls for plate straightening, to be used in connection with their universal mill. They are building one of their modern ore grinding machines and a set of rolls for the Williamsport Iron & Nail Works, Williamsport, Pa. For Van Allen & Co., Northumberland, Pa., they are building an ore grinder, a hoist, to be used in connection with their drop, with engine complete, and also a set of puddle rolls. They are manufacturing forty odd building columns for Conrad Schnaeder, contractor and builder, Scranton, Pa., and have just delivered eight building columns to William H. Shepherd & Sons, Wilkes-Barre, Pa. They are making several hydraulic hoists for the Midvale Steel Works, Nicetown, Philadelphia, this being the second set made for the same plant within six months. They have just completed machinery for a coal breaker plant for the Shamokin Coal Company at Natalie, Pa., and have contracts of considerable magnitude from the American Bridge company and Milliken Brothers, both of New York.

The Samuel J. Creswell Iron Works, Philadelphia, Pa., have plans completed for a new blacksmith shop, 123 x 40 feet, to be built on a lot at Twenty-third and Cherry streets.

The management of the Novelty Iron Works, "Dubuque Machine Concern," have decided to move their manufacturing department to East Dubuque, Ill., opposite Dubuque, Iowa, where they have more commodious quarters consisting of two-story machine shop building, foundry building, warehouses and yard room covering an area of half a square. The property has railroad sidings and other conveniences for incoming and outgoing freight. The main office will remain in Dubuque, Iowa, and all mail should be addressed to that point. This concern report a very satisfactory trade in the Boss power hammer and also their line of shingle machines, which are shipped principally to Southern points. Recent orders for the Boss hammer have been received from Pennsylvania, California, Minnesota and Alabama, thus traversing the country to the four extremes.

The Rochester Engineering & Supply Company, 46 Elwood Building, Rochester, N. Y., have incorporated with a capital stock of \$5000 for the purpose of dealing in and manufacturing machinery, &c. Jefferson Young is president and manager.

The William Powell Company, Cincinnati, Ohio, manufacturers of steam brass goods, will shortly enlarge their pattern shop and foundry by the erection of substantial additions, as these departments are at present overcrowded.

The Chapman Valve Mfg. Company, Indian Orchard, Mass., will begin work at once on an addition to the main building 40 x 22 feet, one story high, which will be used for a japan room.

The Helwig Mfg. Company of St. Paul, Minn., report rapidly increasing sales of their pneumatic tools and bolt and rivet clippers, in both this and foreign countries, and are still further enlarging the capacity of their works to facilitate prompt delivery of increased orders received.

The United States Vapor Purifying & Disinfectant Steel Valve & General Mfg. Company, 123 Norman avenue, Greenpoint Brooklyn, have incorporated, with a paid in capital of \$100,000 for the manufacture of vapor and disinfecting valves and general machine work. A new plant, 50 x 200 feet, three stories in front and one story in rear, will be erected, which will be esp-



cially adapted for their work and will be of brick construction. The plant will consist of a foundry and machine shop, the equipment for which has not yet been purchased. The officers are Prof. C. J. Heltzman, president and general manager; Walter F. Aston, vice-president, and James T. Trory, treasurer.

The Lawrence Machine Company, Lawrence, Mass., have made a shipment of eight centrifugal pumps to Chaparra, Cuba, for use on a sugar plantation. Orders have recently been received for 71 pumps of different sizes from the New York Continental Filter Company, also two 15-inch pumps and two vertical cross compound engines for the city of Binghamton, N. Y.

The United Engineering & Foundry Company of Pittsburgh are turning out a large lot of machinery for the new plant of the Highland Steel & Iron Company.

The Geiser Mfg. Company, Waynesboro, Pa., are about erecting a new building 295 x 50 feet, which will be an annex to their storage building. It will be five stories, of brick, with slate roof.

The strike of the machinists at the plant of the Sharon Steel Company, Sharon, Pa., which started on May 15 last, has been satisfactorily settled and the men are again at work.

The Wolf Company, Chambersburg, Pa., builders of four mill machinery, have the following contracts on hand: one 50-barrel mill for Victor Tumoline, Zacatecas, Mexico; one 50-barrel mill for Jesus Bustamante, Zenora, Mexico; one 75-barrel mill for the Crowell Milling Company, Crowell, Mich.; one 200-barrel mill for the Eastern Milling & Export Company, Philadelphia, Pa., to be erected at Chambersburg, Pa.; a 75-barrel mill for J. W. & R. Phipps, Volney, Va.; a 50-barrel mill for J. J. Hickes, Kingston, Tenn.; a 40-barrel mill for Beach & Croff, Bealeton, Va.; a 75-barrel mill for Knott & Son, Massena, Iowa, and a 100-barrel mill for Goose River Milling Company, Maysville, N. Dak.

#### Engines and Boilers.

The plant of the Abendroth & Root Mfg. Company, 99 John street, New York City, manufacturers of water tube boilers, spiral riveted pipe, &c., situated in the Greenpoint district of Brooklyn, was last week almost totally destroyed by fire. The loss on stock, building and machinery is placed at about \$150,000, which is fully covered by insurance. Arrangements are now being made to resume business as quickly as possible.

The Oswego Boiler Works, Oswego, N. Y., have been steadily increasing their plant, until now it covers several acres and comprises a number of buildings equipped with the latest machinery. A new foundry has lately been erected, and as soon as the necessary appliances can be installed it will be put in operation. An addition, 20 feet wide and two stories high, is to be built to the west side of the engine room and machine shop, the upper floor of which is to be used as a pattern room. The boiler shop proper is to be enlarged by an addition on the south end, 30 feet high, 24 feet long and extending across the building. A new 24-foot traveling crane has lately been installed.

The plant of the Gardner Motor Company, Limited, manufacturers of marine and stationary gas engines, launches, &c., at New Orleans, La., was recently struck by lightning and almost totally destroyed. The machinery building and its contents were entirely destroyed, the loss amounting to about \$200,000, with \$50,000 insurance. The foundry, tinshop, laboratory and boat shed were not damaged. It is the intention of the company to rebuild at once.

The Baldwin Locomotive Works, Philadelphia, Pa., have begun operations on a new six-story machine shop, to be located on Spring Garden and Sixteenth streets. The structure will be L-shaped, the general dimensions being 310 x 50 feet and 156 x 50 feet.

#### Buildings and Bridges.

The Modern Steel Structural Company, Waukesha, Wis., have been so crowded with work since the erection of their bridge and structural works, that they are contemplating the erection of another building, which will double the capacity of the plant.

The Indianapolis Bridge & Iron Works, Indianapolis, Ind., recently suffered a \$45,000 loss by fire. One building out of three was saved, and they expect to resume active operations in two or three weeks.

The new plant of the McClintic-Marshall Construction Company, at Rankin, near Pittsburgh, will soon be completed, and is expected to be ready for operation in September. The company are having an active demand for their products and have recently closed with the Pennsylvania Railroad Company for a bridge at Marysville, Pa.; six bridges for the city of Philadelphia, and a storehouse for the Norfolk Navy Yard, Norfolk, Va. The whole will call for over 1,500,000 tons of material.

The E. Keeler Company, Williamsport, Pa., have bought land adjoining their works on which to erect two additional buildings. Both will be of brick, one an extension of the erecting shop 110 x 75 feet, and the other an extension of the sheet iron shop 75 x 50 feet. The company hope to have them finished and in running order in 60 days. The works are moving full and part overtime.

#### Foundries.

The six acres of land fronting on Haddon and Ferry avenues and the Camden & Atlantic City Railroad, Camden, N. J., recent-

ly purchased by the Whitney Car Wheel Company, 510 Betz Building, Philadelphia, upon which they intended building a large plant, will have to be abandoned, the railroad company being unable to put in a siding, as requested, on account of the heavy and frequent train traffic at the location. The company have secured another site on the Reading Railroad, 500 feet front and south of Tenth street, in the same city, upon which they will erect their plant. Employment will be given to about 300 men.

The Milwaukee Steel Casting Company, Milwaukee, Wis., are building an addition to their foundry, covering a ground space of 80 x 98 feet, and a three-story brick building for the finishing department, 60 x 60 feet.

The Lakeside Malleable Iron Company, Lakeside, near Racine, Wis., have begun the erection of another brick building, 85 x 214 feet, in order to increase their manufacturing facilities. The company's business is steadily increasing and a larger output is necessary.

The Matawan Steel & Iron Company, Matawan, N. J., recently incorporated, are the outgrowth of a firm who for the last 20 years have been manufacturing plano plates. The new company will operate a foundry, continuing the same line as formerly made by the firm as a specialty, and will on August 1 commence to operate on 3000 square feet of factory and foundry space.

The Columbia Iron & Steel Foundry Company of Pittsburgh have recently added to their equipment a 15-ton Chisholm & Moore compressed air traveling crane, two more core ovens, a new Stillwell-Bierce & Smith-Valle air compressor. The plant will be able to produce about 15 tons of castings per day. It is probable that a 10-ton locomotive crane may be added to the equipment later.

#### Hardware.

The Hawkins Company, manufacturers of the Blake-Lamb animal traps, formerly located at Waterbury, Conn., have moved to South Britain, in the same State. Their factory is a new one, 32 x 120 feet, three stories high, of wood.

The Stengel Mfg. Company, Hamilton, Ohio, who were incorporated in June last with the following named gentlemen, Frank N. Duerr, president; C. F. Cousins, vice-president, and John A. Weigel, secretary and treasurer, for the purpose of manufacturing the Stengel patent double wheel anti-friction casters and other hardware specialties, have just moved into larger quarters in which new and special machinery is being installed. The company will employ 12 to 15 hands and have an annual capacity of 60,000 sets.

The Emmert Hartzell Cutlery Company, Gettysburg, Pa., who commenced to manufacture July 1, are already having an encouraging demand for their goods. They have established agencies in New York, Baltimore, Chicago and San Francisco, and are negotiating for representation in other cities.

Red Jacket Mfg. Company, Davenport, Iowa, issue a circular under date July 26, in which they refer to the destructive fire on the night previous, in which a million dollars' worth of property was destroyed, and state that their entire factory escaped unharmed. They are running their works as usual, 16 hours a day, trying to keep abreast of orders for their Red Jacket pumps.

#### Miscellaneous.

The Clement Bush Iron & Brass Foundry, Quincy, Ill., are building up an extensive business in the manufacture of metal wheels for agricultural implements. They are installing much modern machinery for the purpose of increasing the productive capacity of the wheel department.

Hemp & Co., St. Louis, manufacturers of sheet steel stoves and tinware, were burned out July 23, suffering a loss of \$80,000, covered by insurance.

The Emerson Mfg. Company, Rockford, Ill., manufacturers of agricultural implements, are making great improvements in their plant and extending their manufacturing facilities. They are erecting a three-story building, 50 x 70 feet, to be used for the manufacture of mowing machines. They have also refitted old buildings purchased from other parties and are adapting them to their purposes. They have installed a refrigerating plant for tempering plowshares in their plow works. This refrigerating machine is of the usual ice making type, but is used for keeping water at a uniform low temperature for the purpose of tempering plowshares. The arrangement is reported to be much more satisfactory than the method formerly employed.

The Seneca Chain Company have purchased the old plant of the Royal Machine Company, Kent, Ohio, and will remodel it, building a large addition. The company will double their capacity.

The American Tube Works, Boston, Mass., manufacturers of seamless drawn brass and copper tubes, are erecting a brick boiler house, 54 x 41 feet, one story, at the plant in Somerville.

The United Coke & Gas Company will enlarge their plant at Camden, N. J., by the erection of a storage warehouse, 31 x 66 feet; ammonia house, 40 x 54 feet; coke bin, 24 x 50 feet; condensing house, 50 x 114 feet, and a benzole house, 42 x 56 feet.

The Wheeling Stamping Company, Wheeling, W. Va., have installed a 100 horse-power Westinghouse engine. The firm have also put in recently some new machinery and are turning out a large output of metal ointment jar covers.

## The Iron and Metal Trades.

The strike in the Sheet, Tin Plate and Hoop rolling mills has reached a point where it either will go at once into history as an abortive attempt, or will enter into a much more bitter and dangerous phase. It is now a question which party will prevail in the councils of the Amalgamated Association.

The prospect held out during the past few days for an early settlement has caused buyers to be less eager to guard against scarcity of material in those lines which are directly affected, in Sheets, Tin Plate, Hoops and Bars.

The event of the week has been the purchase of 60,000 to 70,000 tons of Bessemer and Basic Pig in the Central West by the United States Steel Corporation for immediate and for August delivery. This has practically exhausted the available supply there and has had the effect of steadying the market, in which the corporation, with its sliding scale contracts based on Pig Iron, has a strong interest. We cannot learn that although Eastern Iron was offered, much of it has been accepted.

The Foundry Iron markets seem to be wavering still, with the majority of large interests abstaining from an effort to crowd sales, while other, smaller companies are making concessions.

The Bar trade has been quite active, with further sales of some magnitude to the agricultural implement makers.

In the Structural trade activity is noticeable, due allowance being made for the fact that the season has pretty far progressed.

The Wire trade is in an uneasy condition over the more urgent offerings on the part of outside interests. The volume of business done by the American Steel & Wire Company continues quite heavy and is far ahead of the records of the previous year, which, it is true, were poor until October.

Foreign Steel is being offered to some extent at prices which, while they show the distress of the foreign works, are still too high to give them any chance here.

Ferromanganese is weaker and Foreign has sold in tidewater markets at about \$52.

The Copper market has declined squarely to 16½c., the first open reduction for a very long time. It remains to be seen whether the new figure will stimulate consumption in this country sufficiently to counterbalance the falling off in Europe. The reduction certainly cannot be called a radical one.

The position of Lead is not regarded as very sound. There was an extraordinary increase in the production last year, due to the stimulus of high prices upon the mining operations, and as a result thereof a very heavy accumulation of stock. Since then an arrangement for a reduction of output has been made with the mining companies of the Cœur d'Alene country, the largest producing section. As yet no reduction of output has been secured elsewhere, so that the smelting interests and the Cœur d'Alene producers are bearing the burden of holding up values for other districts.

Another meeting has been held at St. Louis to get the Spelter producers together. Nothing final was accomplished.

## A Comparison of Prices.

At date, one week, one month and one year previous.

### Advances Over the Previous Month in Heavy Type. Declines in Italics.

|   | July 31,<br>1901. | July 24,<br>1901. | July 3,<br>1901. | Aug 1,<br>1900 |
|---|-------------------|-------------------|------------------|----------------|
| <b>PIG IRON:</b>                                |                   |                   |                  |                |
| Foundry Pig, No. 2, Standard, Philadelphia..... | \$14.75           | \$14.75           | \$15.00          | \$16 25        |
| Foundry Pig, No. 2, Southern, Cincinnati.....   | 12.75             | 12.75             | 13.00            | 15 50          |
| Foundry Pig, No. 2, Local, Chicago.....         | 15.00             | 15.00             | 15.00            | 16 50          |
| Bessemer Pig, Pittsburgh.....                   | 15.75             | 16.00             | 16.00            | 16 00          |
| Gray Forge, Pittsburgh.....                     | 13.75             | 13.75             | 13.75            | 15 00          |
| Lake Superior Charcoal, Chicago..               | 17.00             | 17.00             | 17.00            | 21.00          |

### BILLETS, RAILS, ETC.:

|   |       |       |       |       |
|---|-------|-------|-------|-------|
| Steel Billets, Pittsburgh (nom)....   | 23.50 | 24.00 | 24.00 | 19 00 |
| Steel Billets, Philadelphia (nom).. <td>26.00</td> <td>26.20</td> <td>26.75</td> <td>20 50</td> | 26.00 | 26.20 | 26.75 | 20 50 |
| Steel Billets, Chicago, (nom).....  | ..... | ..... | ..... | 20 00 |
| Wire Rods (delivered).....  | 36.00 | 36.00 | 39.00 | 35 00 |
| Steel Rails, Heavy, Eastern Mill..  | 28.00 | 28.00 | 28.00 | 35.60 |
| Spikes, Tidewater.....  | 1.80  | 1.80  | 1.80  | 2.10  |
| Splice Bars, Tidewater.....   | 1.50  | 1.50  | 1.45  | 2 00  |

### OLD MATERIAL:

|                                     |       |       |       |       |
|-------------------------------------|-------|-------|-------|-------|
| O. Steel Rails, Chicago, gross ton  | 13.00 | 13 00 | 13.00 | 9 50  |
| O. Steel Rails, Philadelphia.....   | 15.75 | 16.00 | 14.50 | 12.00 |
| O. Iron Rails, Chicago, gross ton.. | 19.00 | 18.50 | 18.50 | 12.50 |
| O. Iron Rails, Philadelphia.....    | 10.00 | 10.00 | 10.00 | 14.00 |
| O. Car Wheels, Chicago, gross ton.  | 16.50 | 16.50 | 16.50 | 16 00 |
| O. Car Wheels, Philadelphia.....    | 17.50 | 17.50 | 17.50 | 17 00 |
| Heavy Steel Scrap, Chicago, g. ton  | 12.00 | 12.50 | 13.00 | 9 00  |

### FINISHED IRON AND STEEL:

|                                    |      |      |       |      |
|------------------------------------|------|------|-------|------|
| Refined Iron Bars, Philadelphia... | 1.55 | 1.55 | 1.55  | 1.25 |
| Common Iron Bars, Chicago.....     | 1.60 | 1.60 | 1.55  | 1 40 |
| Common Iron Bars, Youngstown..     | 1.45 | 1.45 | 1.40  | 1.25 |
| Steel Bars, Tidewater.....         | 1.60 | 1.60 | 1.60  | 1.90 |
| Steel Bars, Pittsburgh.....        | 1.40 | 1.40 | 1.40  | 1.00 |
| Tank Plates, Tidewater.....        | 1.75 | 1.75 | 1.75  | 1.30 |
| Tank Plates, Pittsburgh.....       | 1.60 | 1.60 | 1.60  | 1.10 |
| Beams, Tidewater.....              | 1.75 | 1.75 | 1.75  | 2.05 |
| Beams, Pittsburgh.....             | 1.60 | 1.60 | 1.60  | 1.90 |
| Angles, Tidewater.....             | 1.75 | 1.75 | 1.75  | 1.95 |
| Angles, Pittsburgh.....            | 1.60 | 1.60 | 1.60  | 1.80 |
| Skelp, Grooved Iron, Pittsburgh..  | 1.80 | 1.80 | 1.82½ | 1.25 |
| Skelp, Sheared Iron, Pittsburgh..  | 1.90 | 1.90 | 1.90  | 1.25 |
| Sheets, No. 27, Pittsburgh.....    | 3.10 | 3.10 | 2.90  | 2.95 |
| Barb Wire, f.o.b. Pittsburgh.....  | 2.90 | 2.90 | 2.90  | 2.80 |
| Wire Nails, f.o.b. Pittsburgh..... | 2.30 | 2.30 | 2.30  | 2.20 |
| Cut Nails, Mill.....               | 2.00 | 2.00 | 2.00  | 1.95 |

### METALS:

|   |       |        |       |        |
|---|-------|--------|-------|--------|
| Copper, New York.....                                 | 16.50 | 16.87½ | 17.00 | 16.37½ |
| Spelter, St. Louis.....                               | 3.80  | 3.80   | 3.82½ | 4.00   |
| Lead, New York.....                                   | 4.37½ | 4.37½  | 4.37½ | 4.35   |
| Lead, St. Louis.....                                  | 4.27½ | .....  | 4.25  | 3.95   |
| Tin, New York.....                                    | 28.00 | 26.62½ | 28.50 | 22.50  |
| Antimony, Hallett, New York....                       | 8.75  | 8.75   | 8.75  | 9.50   |
| Nickel, New York.....                                 | 60.00 | 60.00  | 60.00 | 55.00  |
| Tin Plate, Domestic Bessemer, 100 lbs., New York..... | ..... | 4.19   | 4.19  | 4.84   |

## Chicago.

1205 FISHER BUILDING, July 31, 1901.—(By Telegraph.)

The outlook for fall trade has been greatly improved by the bountiful rainfall all over the West during the past four or five days. The districts which have been suffering most from drought were favored with soaking rains, which will undoubtedly save a very considerable portion of the corn and other fall crops and will thus be of great benefit to the farming interests which are the mainstay of Western trade. Renewed confidence has been imparted to business circles, and both manufacturers and merchants are rejoicing over the change which has been wrought. The week has been one of excellent business in almost every branch of the Iron and Steel trades. The only exception is in Pig Iron, in which the demand has been light. The quietness in Pig Iron is due to causes which are considered temporary. The molders' strike will have to be settled before much buying is done. It is believed that this is only a question of a few days or at most a week or two. It is reported here that all Bessemer Pig Iron available for delivery in August in the Mahoning and Shenango valleys has been picked up at \$15.25 at furnace. This news is received with much satisfaction by the Pig Iron trade. Jobbers are having a lively demand for Sheets and Tin Plate, on which sharp advances have been made.



**Pig Iron.**—The volume of business now being transacted is much under the normal, even for midsummer. One sale of 1000 tons of Southern Foundry Iron has been made and a few transactions of 50 to 200 tons are reported. The total sales have been very small. Foundrymen are awaiting the settlement of the various strikes. Some inquiry is noted for Malleable Bessemer, and the local furnace companies are so well sold up that they are asking an advance. The leading Southern furnace companies are also marking up the price of No. 1 Foundry Pig. We quote as follows:

|  |                    |
|--|--------------------|
| Lake Superior Charcoal.....                                  | \$17.00 to \$18.00 |
| Local Coke Foundry, No. 1.....                               | 15.50 to 16.00     |
| Local Coke Foundry, No. 2.....                               | 15.00 to 15.50     |
| Local Coke Foundry, No. 3.....                               | 14.50 to 15.00     |
| Local Scotch, No. 1.....                                     | 15.75 to 16.25     |
| Ohio Strong Softeners, No. 1.....                            | 16.00 to 16.50     |
| Southern Silvery, according to Silcon.....                   | 14.90 to 15.15     |
| Southern Coke, No. 1.....                                    | 14.65 to 14.90     |
| Southern Coke, No. 2.....                                    | 14.15 to 14.40     |
| Southern Coke, No. 3.....                                    | 13.65 to 13.90     |
| Southern Coke, No. 1 Soft.....                               | 14.65 to 14.90     |
| Southern Coke, No. 2 Soft.....                               | 14.15 to 14.40     |
| Foundry Forge.....   | 13.15 to 13.40     |
| Southern Gray Forge.....                                     | 12.65 to 12.90     |
| Southern Mottled.....  | 12.15 to 12.40     |
| Southern Charcoal Softeners, according to Silcon.....        | 15.00 to 16.50     |
| Tennessee Silcon Pig.....                                    | 16.00 to 17.00     |
| Alabama and Georgia Car Wheel.....                           | 19.90 to 20.50     |
| Malleable Bessemer.....                                      | 17.50 to 18.50     |
| Standard Bessemer.....                                       | 17.50 to 18.00     |
| Jackson County and Kentucky Silvery, 8 per cent. Silcon..... | 15.75 to 16.25     |

**Bars.**—Manufacturers report a large business in Bar Iron, the sales of the past week again running up to thousands of tons. Included in the business of the week were some contracts for the season's requirements of implement manufacturers, who had not yet completed their entire wants. A very good tonnage has been taken in Steel Bars. Heavy specifications are being received on contracts previously placed. The mills now in operation are obtaining all the work they can handle. The Republic Iron Company are starting their mill at Toledo, Ohio, which has been closed for a long time, and are hopeful that they will be able to keep it in regular operation hereafter. Prices are strong. Bar Iron manufacturers will take new business at 1.55c., Chicago, if for delivery far in the future, but for reasonably early shipment 1.60c. is bottom, and numerous sales are reported as high as 1.65c. The situation as to Steel Bars is still stronger. Consumers are placing orders for future delivery at 1.55c., Chicago, but are unable to secure definite promises as to delivery. They are paying 1.65c. for reasonably early shipment, and in some instances it is stated that even higher prices have been made. Deliveries are just being received by large buyers on contracts made in April and May. Light Hoops are very scarce, and while the largest makers are quoting 2.15c., Chicago, on mill shipments the independent mills are asking 2.40c. to 2.50c. for reasonably early delivery. Jobbers are still enjoying a heavy demand for shipment from stock and continue to report difficulty in keeping up their regular assortment of sizes. Prices for small lots from stock are 1.90c. to 2c. for Bars, and 2.40c., base, for Hoops.

**Car Material.**—Business has been somewhat larger. Quite a number of orders have been placed for various classes of material, some of the orders calling for fairly large quantities.

**Structural Material.**—The demand is considerably heavier. Contracts have been placed for several thousand tons and small orders have been numerous. The prospects for future business are steadily getting better. Every week sees more building projects added to those under consideration and plans for the elevation of more railroad tracks in the city are taking shape, involving many miles, which will need a great many bridges. The city of Chicago has placed contracts for two additional bascule bridges, to take the place of old structures spanning the Chicago River. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.75c.; 18 inches and over, 1.85c.; Angles, 1.75c. rates; Tees, 1.80c.; Universal Plates, 1.75c. to 1.85c.; small lots of Beams and Channels from local yards are quoted at 2.25c.; Angles, 2c. rates; Tees, 2.15c.

**Plates.**—The mills are taking a good run of orders, embracing lots of 100 to 1000 tons. Some nice orders have been placed for Universal Plates, but the demand is also excellent for Sheared Plates. Jobbers report a

continued heavy movement from warehouse. Mill shipments are quoted as follows: Tank Plate, ¼-inch and heavier, 1.75c. to 1.80c., Chicago; Flange, 1.85c.; Marine, 1.95c. Jobbers are selling small lots from store at 1.90c. to 2c. for Tank and 2.25c. for Flange, with the usual extras for heads, segments, lighter gauges, &c.

**Sheets.**—Shipments from mills have been so heavily cut down that consumers are drawing largely from the stocks of the local jobbers. These stocks are rapidly disappearing. Some jobbers who usually carry large stocks now have only a few odd sizes in their warehouses. The fear that they may not be able to secure material for use when needed is causing many consumers having contracts for future delivery to request jobbers to make shipments now, for which they will pay current prices. Quotations have been advanced and the minimum now asked by any of the jobbing houses is 3.70c. for No. 27 Black, while other houses quote 3.80c., and some sellers are holding for 4.10c. No. 20 is quoted in the same way from 3.40c. up to 3.70. Tin Plates are getting very scarce and jobbers have advanced their base prices 25c. per box during the week.

**Merchant Pipe.**—The volume of business is large, but buyers have not shown any special alarm concerning the possibility of the supply being cut down by a strike in the Tube mills. Some inquiry for protection in case of labor troubles has been received, but this is the only indication of uneasiness. Manufacturers' prices, random lengths, are as follows:

|                                      | In carloads. | Less than carloads. |
|--------------------------------------|--------------|---------------------|
|                                      | Blk. Galvd.  | Blk. Galvd.         |
| ¼ to ½ inch and 11 to 12 inches..... | 59.2 46.2    | 54.9 40.9           |
| ¾ to 10 inches.....                  | 66.7 53.3    | 61.9 49.9           |

**Boiler Tubes.**—Jobbers report a very healthy trade, which is increasing rather than diminishing. Quotations on less than carloads from jobbers' stocks are as follows:

|                          | Steel.   | Iron |
|--------------------------|----------|------|
| 1 to 2½ inches.....      | 50       | 40   |
| 2½ to 5 inches.....      | 51½      | 47½  |
| 6 inches and larger..... | 50 and 5 | 47½  |

**Cast Iron Pipe.**—Manufacturers are having a particularly heavy demand for Pipe of small sizes. The foundries are so filled with work that it is doubtful if deliveries of these sizes can be had from any one inside of 60 days. Numerous small towns are putting in water works and are also being supplied with gas plants. The hot weather has cut down production of the foundries quite considerably. All these influences are tending to stiffen prices.

**Rails and Track Supplies.**—The railroad companies are beginning to place orders for next year's delivery. A little business is also being done in every section for delivery this year, but such orders are only taken for delivery at the convenience of the mills. Light Rails are in good demand, orders now taken calling for delivery in October. Prices are firmly held, with \$28 for Heavy Sections, and \$29 to \$33 for Light Sections. Track Fastenings are firm but unchanged. Quotations are as follows: Splice Bars, 1.75c. to 1.80c.; Spikes, 1.95c. to 2c.; Track Bolts, with Hexagon Nuts, 2.80c. to 2.90c.; with Square Nuts, 2.65c. to 2.75c.

**Merchant Steel.**—Manufacturers' agents report a continuance of good business, including additional season contracts from implement manufacturers. Mill shipments, Chicago, are quoted as follows: Smooth Finished Machinery Steel, 2c. to 2.10c.; Smooth Finished Tire, 1.85c. to 2c.; Open Hearth Spring Steel, 2.30c. to 2.40c.; Toe Calk, 2.40c. to 2.60c.; Sleigh Shoe, 1.85c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 55 off. Ordinary grades of Crucible Tool Steel are quoted at 6½c. for carloads and 7c. to 7½c. from store; Specials, 12c. upward.

**Old Material.**—Sales of Old Iron Rails have been made at advanced prices. Relaying Steel Rails are very scarce, and it is stated that buyers would be willing to pay almost as much as new Rails would cost if they could get what they need. Railroad Wrought Scrap is slightly weaker, but Busheling Scrap, Borings and Turnings are in short supply and prices are a little firmer. Casting Scrap is very quiet owing to labor troubles in



foundries. The following are approximate quotations per gross ton:

|                                     |                    |
|-------------------------------------|--------------------|
| Old Iron Rails.....                 | \$19.00 to \$20.00 |
| Old Steel Rails, mixed lengths..... | 13.00 to 13.50     |
| Old Steel Rails, long lengths.....  | 15.50 to 16.00     |
| Heavy Relaying Rails.....           | 24.00 to 26.00     |
| Old Car Wheels.....                 | 16.50 to 17.00     |
| Heavy Melting Steel Scrap.....      | 12.00 to 12.50     |
| Mixed Steel.....                    | 10.50 to 11.00     |

The following quotations are per net ton:

|                                       |                    |
|---------------------------------------|--------------------|
| Iron Fish Plates.....                 | \$16.00 to \$16.50 |
| Iron Car Axles.....                   | 18.50 to 19.00     |
| Steel Car Axles.....                  | 15.50 to 16.00     |
| No. 1 Railroad Wrought.....           | 14.00 to 14.50     |
| No. 2 Railroad Wrought.....           | 12.50 to 12.75     |
| Shafting.....                         | 15.50 to 16.00     |
| No. 1 Dealers' Forge.....             | 12.00 to 12.50     |
| No. 1 Bushing and Wrought Pipe.....   | 10.50 to 11.00     |
| Iron Axle Turnings.....               | 10.50 to 11.00     |
| Soft Steel Axle Turnings.....         | 9.00 to 9.50       |
| Machine Shop Turnings.....            | 10.00 to 10.50     |
| Cast Borings.....                     | 4.50 to 4.75       |
| Mixed Borings, &c.....                | 4.50 to 5.00       |
| No. 1 Bolders, cut.....               | 11.50 to 12.00     |
| No. 2 Bolders, cut.....               | 9.50 to 10.00      |
| Heavy Cast Scrap.....                 | 10.50 to 11.00     |
| Stove Plate and Light Cast Scrap..... | 8.00 to 8.50       |
| Railroad Malleable.....               | 11.50 to 12.00     |
| Agricultural Malleable.....           | 10.50 to 11.00     |

**Metals.**—Copper is a trifle lower and carload lots of Lake are now quoted at 17½c., while Casting brands are sold at 16¾c. to 16½c. Pig Lead is unchanged at 4.32½c. for Desilverized and 4.42½c. for Corroding in 50-ton lots. Dealers quote selling prices on small lots of Old Metals as follows: Copper Wire and Heavy, 15½c.; Copper Bottoms, 14c.; Pipe Lead, 4¼c.; Zinc, 3¼c.

**Coke.**—The demand for Coke is now feeling the effects of the labor troubles in the foundries and business is somewhat quieter. Prices are unchanged at \$4.50 to \$5 for 72-hour Foundry Coke.

The Cambria Steel Company, Western Union Building, Chicago, manufacturers of Beams, Channels and Angles, have made arrangements to have a large stock of these shapes of their own make carried by parties in Chicago. The stock includes all of the standard sections of the light weights, and can be cut in lengths as wanted and shipped within one or two days from the receipt of the order. The company have recently completed new mills producing Open Hearth Steel only, and can therefore furnish shapes made of either Basic or Acid Open Hearth Steel as well as Bessemer.

## Philadelphia.

FORREST BUILDING, July 30, 1901.

The market has been very quiet during the past week, as everybody is waiting for the outcome of the Steel strike. General conditions appear to have improved somewhat, rain in the corn belt and elsewhere having had quite an encouraging influence. Prices of Pig Iron are supposed to be about the same as a week ago, but reports says that in special cases extremely low figures have been quoted. This is probably correct, and if the strike continues much longer the decline is likely to become general, but so far it has been confined to isolated cases, so that quotations stand at about last week's figures, although 25c. and even 75c. less has been done for a few good sized lots. Finished Material of all kinds is maintained at full prices, the output being somewhat restricted by the heat, which, with the curtailment in the West, keeps the Eastern markets in fairly good shape. The situation is somewhat indefinite nevertheless, but it is expected that the market will either be better or worse in the near future, as the present deadlock cannot be continued without exercising an influence one way or the other, but which it will be time alone can tell.

**Pig Iron.**—There is quite a difference of opinion as regards the Pig Iron situation. Locally furnaces are well sold up, and with light stocks on hand makers of Pig Iron are disposed to hold prices pretty steady. Outside lots, however, are offered at low figures, and as a means of self protection some of the nearby furnaces have met the market, but apart from a few special cases there is no pressure for business at less than \$15 for No. 2 X and \$14.50 for No. 2 Plain, some in fact claim to be doing better than these figures. Under the circumstances uniformity is hardly possible, as the conditions vary in almost each individual case. Some furnaces are not find-

ing their usual outlet in the West, some are located at points in which freights are particularly favorable, while still others have to introduce what are comparatively, and in some cases absolutely, new Irons. In times of activity everything goes, but in times like these picking and choosing is done, and sellers have no alternative but to adapt their prices according to the exigencies in each particular case. At this writing it cannot be said that the market is positively weak, but it is likely enough to turn that way unless some stimulant is applied within the next two or three weeks. The range of prices to-day is about as follows for city and nearby deliveries, and 25c. to 50c. less at points within a radius of 100 miles or so South or West: No. 1 X Foundry, \$15 to \$16; No. 2 X Foundry, \$15 to \$15.25; No. 2 Plain, \$14.25 to \$14.75; Standard Gray Forge, \$13.75 to \$14; Ordinary Gray Forge, \$13.50; Basic (Chilled), \$14 to \$14.25; Bessemer, \$14.50 to \$15.

**Muck Bars.**—Held at \$28 to \$28.50, f.o.b. cars at sellers' mills.

**Billets.**—Prices are easier, and orders for August shipments could be placed at \$26 to \$26.25 delivered, and for October and later months, 50c. to \$1 less. There is not much business, however, as the disposition is to wait for a settlement of the Steel strike before making heavy engagements.

**Plates.**—There is a good average demand, and mills are running as full as the weather will permit. Orders are not for particularly large lots, but the demand is well distributed, indicating the probability of a considerable increase as soon as the strike is settled. Prices unchanged as follows for city and nearby deliveries: Plates, ¼-inch and thicker, 1.75c. to 1.80c.; Universals, 1.75c. to 1.80c.; Flange, 1.90c. to 2.10c.

**Structural Material.**—Mills are full of work and deliveries as hard to get as they have been at any time for months past. Prices are therefore firm as last quoted—viz., for seaboard or nearby deliveries: Angles, 1.75c. to 1.85c.; Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.

**Bars.**—There is a good demand, and full time at mills is the rule in most cases. Prices are steady on the basis of 1.45c., f.o.b. Pittsburgh, plus the freight, whatever it may be, for deliveries in buyers' yards. Steel Bars, 1.60c. to 1.65.

**Sheets.**—The demand is for the same urgent character as for several months past. Orders to almost any extent could be had if deliveries could be made, but mills are full up, so that only a limited amount of business can be placed. Prices are hardly quotable, but nominally the following is as near the market as can be given for best Sheets (Common Sheets two-tenths less): No. 10, 2.60c.; No. 14, 2.80c.; No. 16, 2.90c. to 3c.; Nos. 18-20, 3.50c.; Nos. 21-24, 3.60c.; Nos. 26, 27, 3.75c.; No. 28, 3.80c. to 4c.

**Old Material.**—The demand is very erratic and prices are of much the same character. Pressure to sell results in lower prices, while orders that need to be placed soon can only be placed at fairly full quotations. Bids and offers are about as follows for deliveries in buyers' yards: Choice Railroad Scrap, \$17.50 to \$18; Country Scrap, \$16 to \$17; No. 2 Light Scrap, \$12.50 to \$13; Machinery Cast, \$13.75 to \$14.25; Heavy Steel Scrap, \$15.75 to \$16.25; Old Iron Rails, \$19 to \$20; Old Steel Rails, \$15.75 to \$16; Wrought Turnings, \$11.50 to \$12; Cast Borings, \$7.25 to \$7.50; Old Car Wheels, \$17.50 to \$18; Iron Axles, \$21.50 to \$22; Steel Axles, \$17 to \$18.

## Cleveland.

CLEVELAND, OHIO, July 30, 1901.

**Iron Ore.**—Ore shippers are now claiming that they will have most of their wild material down the lakes by the first or the middle of September. This statement is based upon a sustained heavy movement during the last few weeks, in which the smallest Ore receipts have exceeded the record amount of previous years. The material has been forwarded so steadily that it is now quite evident that when this period of intensity

has passed it will be found that the complete capacity of the dock machinery has been learned. The movement has been facilitated by the addition of several clam shell hoists at the various ports along the lake, principally, however, at Fairport. Rate conditions are stable and the demand for tonnage is as it has been through the summer, equal to the supply. The rates are holding firm at 80c. from Duluth, 70c. from Marquette and 60c. from Escanaba.

**Pig Iron.**—The healthy state of the Pig Iron market noted during the last two weeks continues, and there is a very brisk demand for all sorts of material. Bessemer seems to be the leader this week. It is announced that none of the stacks in the Bessemer Association are permitted to make further sales demanding deliveries during August, for the probable capacity has been sold up. It cannot be learned that anything less than \$15.25, at the furnace, has been accepted for Bessemer, for in fact the market is very strong at that figure, yet hardly looking to an advance. Those who have need of Bessemer, however, are very willing to pay that figure. The condition of the Bessemer plants has brightened up the other markets also, for while foundry grades showed up a little weak earlier the buoyancy of the Bessemer market has caused them to climb some and the market is again strong. Sales for August delivery have been very heavy and the plants are pretty well sold up to September 1. The prices hold at \$13.75 as a maximum for No. 2, at the furnace, and \$14.25 as a maximum on No. 1, Valley furnace. There is hardly a change in the conditions surrounding the sale of Basic. The demand has kept up well and the price holds firm at \$15, at the furnace. Deliveries before September 1 are rather hard to obtain.

**Finished Material.**—Billets and Sheet Bars seem to have been the center of buying interest this week, due probably to a desire to test the effect of the strike upon that material. The feeling has been that since the Sheet and Bar mills have been closed there would be more Billets upon the market than the trade could use, hence there would be a chance to break down the price. The expected result, however, did not materialize, for while the market heard inquiries for between 7000 and 10,000 tons of Sheet Bars, and for even larger amounts of Billets, the old quotations held firm. Bar Iron is holding up strong, the recent advance having no deteriorating effect upon the business. The sales are naturally limited to the decreasing supply, hence the normal demand seems abnormal at the present state of the market. The price remains at 1.55c. Beams and Channels up to 8 inches are very hard to obtain. The situation is so strong that many of the local buyers are going to the dealers here and are buying out of stock at from 2.35c. to 2.50c. Beams and Channels between 8 and 24 inches are easier to obtain, and deliveries are possible within a week or ten days. Angles are almost entirely off of the market. In most instances the larger concerns are unable to make deliveries before October 1. All sizes are affected by this scarcity. There is hardly a change in the Sheet situation. The sales this week have been moderate because most of the stock in the Cleveland warehouse has been disposed of. In Light Sheets, blue annealed, out of stock, the price is 2.50c. for No. 10, and No. 28, one pass cold rolled, is still quoted at 3.95c. The speculative buying has disappeared under the advanced prices, and the sales now are confined largely to the legitimate needs of the trade. Some inquiries for Rails for next year are showing up now and negotiations are being opened for contracts. The outlook now is for a continuation of the prevailing price, \$28, for next year's business. So far no sales have been made, but the inquiries have been rather heavy, seeing that it is a little early for making these contracts.

**Old Iron.**—The Scrap trade is looking up considerably. Sales this week have been heavier than previously and the outlook is for a good business ahead. The sales have been made at the old prices, without a tendency noted to either cut or advance them. The quotations follow: No. 1 Wrought, \$15 net; Heavy Steel, \$15 gross; Steel Rails, \$15 gross; Cast Borings, \$6 net; Wrought Turnings, \$10 net.

## Cincinnati.

FIFTH AND MAIN STS., July 31, 1901.—(By Telegraph.)

Taking all the adverse conditions into consideration, one would naturally expect to find a pretty dull situation in the Pig Iron market. The summer season, the unusual heat and the question of strikes all operate against activity, yet in spite of all this season is considerably better than the average summer. Mill grades are dull, but there is a pretty fair demand for Foundry Iron of all grades. Occasionally a lot of 1000 tons is landed, but the general run is for 200-ton orders, and from that down to a single car, in the aggregate a reasonably fair tonnage. Prices, however, appear weak, not weaker or lower than a week ago, but still almost unaccountably out of touch with the general feeling that the situation calls for strength. The minimum figures given herewith have been shaded a fraction, so report says. There is no change in sight, though it is not at all unlikely that the market will assume a stronger appearance. Freight rate from Birmingham is \$2.75 to this point; from Hanging Rock district, \$1. We quote, f.o.b. Cincinnati:

|                                |                    |
|--------------------------------|--------------------|
| Southern Coke, No. 1.....      | \$13.50 to \$13.75 |
| Southern Coke, No. 2.....      | 13.00 to 13.25     |
| Southern Coke, No. 3.....      | 12.25 to 12.75     |
| Southern Coke, No. 4.....      | 11.75 to 12.00     |
| Southern Coke, No. 1 Soft..... | 13.50 to 13.75     |
| Southern Coke, No. 2 Soft..... | 13.00 to 13.25     |
| Southern Coke, Gray Forge..... | 11.75 to 12.00     |
| Southern Coke, Mottled.....    | 11.75 to 12.00     |
| Ohio Silvery, No. 1.....       | 15.50 to 16.00     |
| Ohio Silvery, No. 2.....       | 14.50 to 15.00     |
| Lake Superior Coke, No. 1..... | 14.50 to 15.00     |
| Lake Superior Coke, No. 2..... | 14.00 to 14.50     |
| Lake Superior Coke, No. 3..... | 13.50 to 14.00     |
| Southern Basic.....            | 13.75 to 14.00     |

### Car Wheel and Malleable Irons.

|   |                    |
|---|--------------------|
| Standard Southern Car Wheel, chilling grades..... | \$18.25 to \$18.75 |
| Standard Southern Car Wheel, No. 2.....           | 17.25 to 17.75     |
| Lake Superior Car Wheel and Malleable.....        | 18.50 to 19.00     |

**Plates and Bars.**—Although the quotations are unchanged, the market, especially for Steel Bars, is very much stronger. Many sellers are getting an advance of 10c. on Steel Bars and lesser amounts on other mill products. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.60c., with half extras; same in small lots, 1.80c., with full extras; Steel Bars, in carload lots, 1.55c., with half extras; Base Angles, in carload lots, 1.80c.; Plates, 1/4-inch and heavier, 1.80c.; Sheets, No. 16, 2.50c.

**Old Material.**—The market is quiet and unchanged on about the same basis as quoted last week. We quote dealers' buying prices, f.o.b. Cincinnati, as follows: No. 1 Wrought Railroad Scrap, per net ton, \$13.25 to \$13.50; Cast Railroad Machine Scrap, \$12.25 to \$12.75; Iron Axles, \$18.75 to \$19; Iron Rails, \$16.75 to \$17.25; Steel Rails, rolling mill lengths, \$14.75 to \$15.25; short lengths, \$13.75 to \$14; Car Wheels, \$15.75 to \$16.25. All prices except No. 1 Wrought on the basis of gross tons.

## St. Louis.

CHEMICAL BUILDING, July 31, 1901.

**Pig Iron.**—The market is in a rather quiet condition, with no encouragement for any immediate improvement. Leading producers are maintaining prices, expressing the belief that lower quotations will not increase consumption. A few outside makers are shading prices so that the markets so far as prices are concerned are somewhat unsettled. The only sale of any moment is a 2000-ton lot of No. 2 Foundry to a nearby implement concern. The market as a whole seems to be in a waiting condition, and the next few weeks will determine what course prices are likely to take. We quote as follows, for cash, f.o.b. cars St. Louis:

|                              |                    |
|------------------------------|--------------------|
| Southern, No. 1 Foundry..... | \$14.25 to \$14.50 |
| Southern, No. 2 Foundry..... | 13.50 to 13.75     |
| Southern, No. 3 Foundry..... | 13.00 to 13.25     |
| Southern, No. 4 Foundry..... | 12.50 to 12.75     |
| No. 1 Soft.....              | 14.25 to 14.50     |
| No. 2 Soft.....              | 13.50 to 13.75     |
| Gray Forge.....              | 12.25 to 12.50     |

**Bar Iron.**—There is a strong demand for both Iron and Steel Bars, and mills find it difficult to make prompt shipments. The extreme hot weather which has prevailed for the past 30 days has caused a falling off in the production of from 25 to 30 per cent., on account of the men being unable to work, and there is no prospect of



any immediate improvement of this condition. Mills quote Iron Bars at 1.55c. to 1.60c., and Steel Bars at 1.60c. to 1.65c. Jobbers quote Iron Bars at 1.85c. to 1.90c.; Steel, 1.95c. to 2c., full extras.

**Rails and Track Supplies.**—The large amount of railroad building at present under way has caused a heavy demand for Track material and mills have booked orders for delivery as far ahead as December. Prompt shipment is almost out of the question. Except where very small lots are concerned, and where the buyer is willing to pay a premium in the shape of an advanced price, then prompt shipment can be secured. We quote Splice Bars, 1.80c. to 1.90c.; Bolts, with Square Nuts, 2.65c. to 2.70c.; Nuts, Hexagon Nuts, 2.85c. to 2.90c.; Spikes, 1.95c. to 2.05c.

**Pig Lead.**—A good run of orders is reported, mostly calling for carload lots. We quote 4.27½c. to 4.30c. for Soft Missouri. Chemical is quoted at 4.32½c. to 4.37½c., and in some cases 4.40c. is asked.

**Spelter.**—Rumors are again heard of a Spelter combination. A meeting of those interested was held here on the 30th inst., but nothing definite was accomplished. The demand is fairly active and sellers are asking 3.80c. to 3.82½c. and report a fair trade at these prices.

Hickman, Williams & Co., St. Louis, have been appointed agents for St. Louis and the West for Woodward Iron Company, the appointment taking effect August 1.

## Pittsburgh.

HAMILTON BUILDING, July 31, 1901.—(By Telegraph.)

**Pig Iron.**—The United States Steel Corporation have made further purchases of Bessemer and Basic Pig Iron and have bought all told from 60,000 to 70,000 tons, a small part of it for July delivery, but nearly all for August. The Pig Iron market has been somewhat quiet and prices weak, but these purchases have taken surplus Iron off the market and made it stronger in tone. As long as the United States Steel Corporation and other Steel interests can keep surplus Iron off the market there is not much chance of prices declining. The leading Steel interests buy so little Pig Iron in the open market that they are just as much interested in holding the market up as the furnaces. The price of the Bessemer Iron was \$15.25 at furnace, and the Basic was \$14.50. It is a fact that independent furnaces are offering Bessemer Iron at \$15 at furnace, but only a limited amount of Iron could be had at this price. There is a fair demand for Forge and Foundry Iron and prices are unchanged. We quote Standard Bessemer Pig \$15.25, at furnace, or \$15.75 to \$16, Pittsburgh; Gray Forge, \$13 to \$13.25 at furnace, or \$13.75 to \$14, Pittsburgh; No. 1 Foundry, \$14 to \$15; No. 2, \$14 to \$14.50; No. 3, \$13.75 to \$14, all f.o.b. cars, Pittsburgh. Basic Pig Iron is \$14.50 at Valley furnace. We note sales of about 2000 tons of Forge Iron at a price equivalent to \$13.75, Pittsburgh.

**Steel.**—The market is quiet, and only small lots for prompt shipment are being asked for. The Steel market seems weaker, no doubt due to the strike which has cut off a very large consumption. We quote Bessemer Billets for prompt shipment and in small lots at \$23.50 at mill. On large lots of Steel for forward shipment \$23 at mill or possibly \$22.50 might be done on a firm offer. We note a sale of about 250 tons of Bessemer Billets for August delivery at a price equal to \$23.40, makers' mill.

(By Mail.)

The General Executive Committee of the Amalgamated Association is now in session in this city, considering the proposition made to President Shaffer last Saturday by J. P. Morgan for a settlement of the strike. In spite of reports in the daily press to the contrary, the proposition made by Mr. Morgan is not as favorable to the Amalgamated as was made in the conferences held in this city July 11-13 and which the Amalgamated refused to accept. The proposition from Mr. Morgan to the Amalgamated is an ultimatum, because if it is not accepted there will be no further dealings between the United States Steel Corporation and the Amalgamated

Association, but all the mills will be made nonunion. After the return of M. M. Garland, an ex-president of the Amalgamated, to Pittsburgh from New York, where he had tried to arrange another conference, but failed, President Shaffer and other officials of the Amalgamated saw the "handwriting on the wall," and President Shaffer hurried down to New York to see if he could not get some terms of settlement from Mr. Morgan and Mr. Schwab. If the proposition made by Mr. Morgan is turned down the strike will go on, but the United States Steel Corporation will at once make preparations to open up their idle mills with nonunion men. It is hoped, however, that the matter will be adjusted and the strike ended. The United States Steel Corporation have bought in the past week 60,000 to 70,000 tons of Basic and Bessemer Iron for August shipment to the different works. The price of the Bessemer Iron was \$15.25 and of the Basic \$14.50, at Valley furnace. Steel continues quiet and prompt Billets are \$23.50, while Steel for forward delivery could be bought at a lower price. There is a moderate demand for Finished Material and the market is firm. Sheets for prompt shipment are commanding very high prices.

**Plates.**—It is claimed that any cutting being done in price of Plates is by small mills that are outside of the association. A fair amount of tonnage is being placed and the Plate mills are pretty well filled up for some time ahead. Prices, as quoted by the Plate Mills Association, are as follows: Tank quality, ¼-inch and heavier, 1.60c.; 3-16-inch, 1.70c.; under 3-16-inch and above No. 10, 1.75c.; Flange or Boiler Steel, 0.1c. advance over the base of Tank; Marine and Fire Box, American Boiler Manufacturers' Association specifications, 0.2c. advance over Tank; Still Bottom Steel, 0.3c. advance over Tank; Locomotive Fire Box Steel and equivalent specifications, 0.5c. advance over Tank, all f.o.b. Pittsburgh.

**Bars.**—There is a continued heavy demand for Steel Bars and the implement makers have placed more orders in the past week, amounting to 15,000 tons or more. The shut down of a number of mills rolling Steel Bars has diverted a good deal of tonnage to other mills, and they are filled up for the next two or three months. Prices are very strong and mills claim there is no incentive to cut on account of tonnage being so heavy. We quote Steel Bars at 1.40c. to 1.45c., half extras, at mill. On Open Hearth Steel Bars \$2 a ton advance is charged, and also extras for high carbons. There is a good demand for Common Iron Bars and we quote 1.40c. to 1.45c., half extras, Valley mill, and 1.50c. for Refined Iron. We quote Hoops at 1.85c. for large orders and up to 2c. for small lots. We quote Bands up to No. 12 gauge at 1.40c. to 1.45c., half extras, at mill.

**Ferromanganese.**—We continue to quote 80 per cent. domestic Ferro at \$55 in small lots, delivered at buyer's mill. For large orders this price would likely be shaded. There is very little doing.

**Steel Rails.**—The starting of the Ohio works of the National Steel Company adds 1800 tons of Rails a day to the output, and will relieve the situation somewhat as regards deliveries. Some small orders for Rails are being placed for fall delivery. We quote Standard Sections at \$28, at mill, and Light Sections up to \$32 and \$33, at mill.

**Structural Material.**—A good deal of tonnage is being placed. The American Bridge Company have taken contracts lately involving some 20,000 tons or more of material, and have also taken some foreign work, including small buildings for the Japanese Navy. The mills are full of work, and, with tonnage coming in, will operate to full capacity for balance of the year. Prices are strong, but unchanged. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inches, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.40c. to 1.45c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh.

**Sheets.**—The Sheet trade is largely in the hands of the jobbers, as the mills are sold up for three or four months and have nothing to offer. No. 27 Black Sheets,



box annealed, one pass through cold rolls, are being sold by jobbers at 3.25c. to 3.50c. Mills are quoting for shipment within 90 days from date of order 3.10c. to 3.20c. for No. 27 and 3.25c. to 3.35c. for No. 28. We quote Galvanized Sheets at 70 and 10 per cent. off, maker's mills, but for prompt delivery are able to sell readily at 70 and 5 per cent. off, and in some cases at 70 off. A settlement of the Sheet strike would very quickly relieve the situation as regards delivery of Sheets.

**Merchant Steel.**—The mills are pretty well filled up, mostly on old contracts, but a fair amount of new tonnage is being placed. There is some cutting being done in prices of Cold Rolled Shafting. We quote: Tire Steel, 1.60c. to 1.70c.; Toe Calk, 1.85c. to 2c.; Open Hearth Spring, 2c. to 2.10c.; Plow Slabs, 2c. to 2.10c.; Cold Rolled Shafting, 55 per cent. off in carloads, 50 per cent. in less than carloads; Sleigh Shoe Steel, 1.65c. to 1.75c.; Tool Steel, 6c. per lb. and upward, according to quality. On Tool Steel the mills allow freight east of the Mississippi River.

**Skelp.**—Sales of about 2000 tons of Grooved Iron Skelp are reported on the basis of 1.85c., maker's mill. The Skelp market is active and prices firm, with prompt deliveries very hard to get. We quote Grooved Iron Skelp at 1.80c. to 1.90c., and Sheared at 1.90c. to 2c. Sales of 2000 to 3000 tons of Grooved Iron Skelp are reported at 1.85c., maker's mill. We quote Grooved Steel Skelp at 1.75c. to 1.80c., and Sheared at 1.80c. to 1.85c.

**Pipes and Tubes.**—There is an excellent demand for Tubing and the tone of the market is strong. It is not likely that the Pipe market will be affected to any extent by the strike, only in the direction that Skelp is harder to obtain. Jobbers continue to get advances over regular prices where they are able to furnish sizes and make prompt delivery of Pipe. Prices to consumers in carload lots are as follows:

| Merchant Pipe.   |                  |                  |
|--|------------------|------------------|
|  | Per cent. Black. | Per cent. Galvd. |
| 1/4 to 1/2 inch and 11 to 12 inch.....                       | 61               | 48               |
| 3/4 to 10 inch.....  | 68 1/2           | 56               |
| Casing, Random Lengths.                                      |                  |                  |
|  | S. & S.          | I. J.            |
| 2 to 3 inch.....   | 58               | 53 1/2           |
| 3 1/4 to 4 inch.....   | 63               | 59               |
| 4 1/4 to 12 1/2 inch.....                                    | 65               | 61 1/2           |
| Casing, Cut Lengths.   |                  |                  |
|  | S. & S.          | I. J.            |
| 2 to 3 inch.....   | 53 1/2           | 59               |
| 3 1/4 to 4 inch.....   | 59               | 55               |
| 4 1/4 to 12 1/2 inch.....                                    | 61 1/2           | 57 1/2           |
| Boiler Tubes.  |                  |                  |
|  | Up to 22 feet.   | Per cent.        |
| Steel.   |                  |                  |
| 1 inch to 1 1/2 inch and 2 1/2 inch to 5 inch, inclusive.... | 65 1/2           |                  |
| 2 inch to 2 1/2 inch, inclusive.....                         | 60               |                  |
| 6 inch and larger.....                                       | 59               |                  |
| Iron.  |                  |                  |
| 1 inch to 1 1/2 inch and 2 1/2 inch.....                     | 43 1/2           |                  |
| 1 1/2 inch to 2 1/2 inch.....                                | 43               |                  |
| 2 1/2 inch to 13 inch.....                                   | 53               |                  |

Prices made by the mills to the jobbers are from 5 to 10 per cent. or more lower than the above, depending on the order. It should be noted that the above prices are for small lots.

**Coke.**—The output of Coke last week in the Connellsville region was about the same as the previous week, 236,000 tons. Shipments were 11,462 cars. There is not much demand for Coke, consumers being covered by contracts, and some surplus Main Line Furnace Coke for prompt shipment has been offered as low as \$1.40. We quote strictly Connellsville Furnace Coke at \$1.75 to \$2 and 72-hour Foundry at \$2.25 to \$2.50 a ton. Main Line Furnace Coke is \$1.60 to \$1.75, but for prompt delivery can be bought readily at \$1.40 to \$1.50 a ton, at oven.

The offices of the Union Steel Company have been removed from the Carnegie Building to Rooms 904-912 Empire Building, Pittsburgh, these being rooms vacated by the American Steel Hoop Company.

W. P. Snyder, Henry W. Oliver and George T. Oliver, all of Pittsburgh, sailed for Europe last week on the "Oceanic," and will be gone until September.

## Birmingham.

BIRMINGHAM, ALA., July 29, 1901.

The market has elements of both strength and weakness in it, and it is a hard matter to follow it in its various windings. There were sales of N. 2 Foundry at \$10.75. Some sold at \$10.50 and some at \$10.25. Some say that there were sales at and below \$10, but your correspondent has failed to confirm this and it is given as gossip of the market. No. 3 Foundry sold at \$10 and at \$9.75. No. 4 Foundry is quoted by the leading interest at \$9.50, with sales. The same interest quotes Gray Forge at \$9.25, at which figure they state their sales were made. But there were some sellers who accepted less. To just what extent concessions were made cannot be ascertained as yet. There may be rebates in freight, which count as concession in price. Basic Iron was in fair demand and sales were made at \$11. The first half of the week business was better than in the last half, due in a measure to the varying phases of the strike. With the prospect of an early ending of that disturbing factor in the trade sellers are anticipating an improved condition in the market. The strength of the market here lies in the fact that with five furnaces out of blast production must be materially curtailed. These furnaces were closed down for repairs and one, at least, changed to make Basic Iron. Those interests shut down are the firmest in price. Your correspondent has known for some time that a move was on foot to consolidate into one corporation several furnace interests in East Alabama. What progress it has made is known only to those interested in the scheme. A concentration of those interests would materially strengthen the situation there. It is reported on good authority that some Western buyers have been in that part of the State, taking in brown Ore offerings that looked reasonable. It is hardly probable that they would ship the Ore to the West, and only the most remote hints are given as to their intentions. So far there is nothing definite.

The Standard Fertilizer Mfg. Company purchased last week of the Bessemer Land & Improvement Company 20 acres of ground as the site for their plant. As soon as arrangements can be made building operations will be commenced. The location is contiguous to the furnaces, making the transfer of the slag convenient. The company have contracted with the National Water Tube Boiler Company of New Brunswick, N. J., for 12 boilers, aggregating 3000 horse-power. Another gas company, styled the Consolidated By-Product Gas Company, are in progress of organization. The plant is to be operated under the Otto-Hoffman patent for by-product Coke ovens. The plant will be independent of any furnace interest and promises that Birmingham shall have as cheap gas as any city in the country.

We are forging right along, our bank deposits running up to \$8,000,000. The pay rolls are about \$2,500,000 monthly. In the past 12 months new corporations were organized with a combined capital of nearly \$3,000,000, and old companies increased their capital stock \$2,500,000. Nineteen new buildings at a cost of over \$2,000,000. The grand total for the year foots up over \$13,000,000. There is no guess work about these figures. They are based on solid facts. The prospect for continuous improvement is as fine as could be asked, and there is as yet no cloud to feed distrust.

## New York.

NEW YORK, July 31, 1901.

**Pig Iron.**—The market continues very quiet, purchasing being very limited. The pressure to sell has been renewed in some quarters and is believed to be connected with the prospect of an enlarged production in districts tributary to this market. We quote: Lehigh, Schuylkill and Virginia Irons, No. 1, \$16 to \$17.50; No. 2 X, \$14.75 to \$15.75; No. 2 Plain, \$14 to \$14.50; Gray Forge, \$14 to \$14.50; Tennessee and Alabama brands, No. 1 Foundry, \$14.50 to \$15; No. 2 Foundry, \$14 to \$14.50; No. 1 Soft, \$14.50 to \$15; No. 2 Soft, \$14 to \$14.50; No. 3 Foundry, \$13.25 to \$13.50; No. 4 Foundry, \$12.75 to \$13.25; Gray Forge, \$12.75 to \$13.

**Steel Rails.**—Transactions are limited to small lots for early delivery, and nothing of any consequence has yet been done for next year, although feelers have made their appearance. Thus one conspicuous Western road has put out an inquiry for 25,000 to 30,000 tons for 1902. We quote \$28 for Standard Sections, \$33 to \$33.50 for Girder Rails, and \$22 to \$23 for Relayers. We quote Spikes, 1.80c. to 1.85c.; Splice Bars, 1.50c. to 1.60c.; Hexagon Track Bolts, 2.65c. to 2.70c., at mill.

**Finished Iron and Steel.**—There has been a fair run of moderate sized orders for structural material, among those placed locally being 750 tons for the New Amsterdam Gas Company, 815 tons for the Sloane warehouse and 550 tons for the New York Press Building. We quote as follows at tidewater: Beam Channels and Zees, 1.75c. to 1.80c.; Angles, 1.75c. to 1.80c.; Tees, 1.80c. to 1.85c.; Bulb Angles and Deck Beams, 2c.; Sheared Steel Plates are 1.80c. to 1.85c. for Tank, 1.90c. to 1.95c. for Flange, 2c. to 2.05c. for Fire Box. Charcoal Iron Plates are held at 2.25c. for C. H. No. 1, 2.75c. for Flange, and 3.25c. for Fire Box. Refined Bars are 1.58c. to 1.60c.; Soft Steel Bars, 1.62½c. to 1.65c.

### Metal Market.

NEW YORK, July 31, 1901.

**Pig Tin.**—During the latter part of last week the holders of Tin secured all the spot Tin available and advanced prices to 28c., which is the asking price to-day. Demand is, however, very slight. It is said that deliveries for the first half of August were made at 27c., at which price the metal was offered at the close. Deliveries more distant than August were offered at 26c. for September, 25½c. for October and 25¼c. for November. In London prices declined considerably, spot being quoted at the close to-day £117 10s. and futures £114 10s. To-day's Banca sale went at an equivalent of 26.35c., c.i.f. New York. To-morrow the monthly statistics will be issued and we are informed that the figures will show a very heavy increase in the visible supply.

**Copper.**—On Monday the prices of the controlling interests were reduced to 16¼c. to 17c. for Lake and 16¾c. to 16½c. for Electrolytic and Casting. It is also stated that one of the large outside producing interests is selling Lake at 16½c. Further heavy shipments of Chile Bars from England have arrived this week. The London market declined during the week, closing to-day £67 10s. for spot and £67 17s. 6d. for three months' futures. Best Selected is unchanged at £74. Following is the table of semiannual United States Copper statistics, as compiled by the New York Metal Exchange, in gross tons:

|  | Supplies.  |         |         |         |
|--|------------|---------|---------|---------|
|  | 1901.      | 1900.   | 1899.   | 1898.   |
| Domestic production for the six months ending June 30 .....  | 133,394    | 134,577 | 124,487 | 120,487 |
| Importations for the six months ending June 30..   | 26,631     | 20,066  | 13,909  | 6,811   |
| Totals.....  | 160,025    | 154,643 | 138,395 | 127,298 |
|  | Shipments. |         |         |         |
|  | 1901.      | 1900.   | 1899.   | 1898.   |
| For the six months ending June 30—   |            |         |         |         |
| To Europe.....   | 40,325     | 85,322  | 51,733  | 65,334  |
| To British North America .....   | 367        | 386     | 220     | ....    |
| To Mexico.....   | 62         | 81      | 50      | ....    |
| Contents of Sulphate of Copper .....   | 5,123      | 3,829   | 1,910   | 1,090   |
| Totals.....  | 54,877     | 89,618  | 53,903  | 66,424  |
| Apparent Home Consumption.   |            |         |         |         |
| Deducting shipments from supplies, there were apparently left for home consumption for the first six months ending June 30 ..... | 105,148    | 65,025  | 84,492  | 60,874  |

**Pig Lead.**—This metal is unchanged and without interesting developments here. The American Smelting & Refining Company continue to quote 4.37½c. for Desilverized, New York, and 4.32½c., St. Louis. London has declined daily and reached the lowest for this year with £11 15s. to-day.

**Spelter.**—The market is extremely dull at unchanged figures—viz., 3.90c. to 3.95c. St. Louis is also quoted dull at 3.80c. London is likewise dull at £16 12s. 6d., which is an advance of 2 shillings 6 pence over last week's quotation.

**Antimony.**—Business is not active and prices remain unchanged at 8¼c. for Hallett's, and 10¼c. for Cookson's.

**Nickel.**—Is firm and unchanged on a basis of 60c. for lots not covered by yearly contracts.

**Quicksilver.**—Prices are unchanged from last week, and a fair amount of business is reported. Prices are \$51 per flask of 76½ pounds for lots of 50 flasks and more. London is unchanged at £9.

**Tin Plate.**—The scramble for deliveries at almost any price has ceased. As soon as the strike cloud appeared to show a rift purchasers concluded that a good time had come to wait and watch developments, and consequently the heavy business of a week ago at sky high prices came to a standstill. The American Tin Plate Company are not quoting, excepting on odd sizes.

### Worcester Notes.

WORCESTER, MASS., July 29, 1901.—One of the buildings of the William T. Merrifield estate, situated at Union and Exchange streets, was partially destroyed by fire last Wednesday night, which caused the shutting down of 22 manufacturing establishments occupying the block across Union street, all of which are furnished power by the 1000 horse-power Corliss engine in the burned building. The engine and boiler rooms escaped actual destruction, they occupying the only section of the building saved, and it is expected that in a short time they will be ready for business again. Among the concerns temporarily shut down are Aaron F. Stowe, shoe machinery; Marcus Mason & Co., coffee machinery; William H. Eddy Company, machinists; Houghton & Buxton Mfg. Company, metal stamping; J. E. Wakefield, wrenches; Worcester Warp Compressing Machine Company; Davis & Buxton Stamping Company, metal stamping, and the Lowell Wrench Company. It is expected that the burned building, which was occupied by a builders' finish concern and box shop, will be rebuilt on a large scale and devoted to general manufacturing.

One feature of the fire was the destruction of the old Merrifield engine, which was replaced a year ago by the new machine. It was built in 1854 and had a capacity of 500 horse-power. In its day it was considered a giant among engines. It was of the upright type. For nearly half a century it provided power for tenants of the Merrifield buildings.

Wyman & Gordon, drop forgings, are to double their plant on Bradley street. The business has grown with remarkable rapidity and now employs 100 hands. It is expected the number will be doubled by the end of the year. Work on a new building has begun.

The Union Water Meter Company of Worcester, employing 125 hands, have voluntarily shortened the week's work to 55 hours, with a full 60-hour pay.

**Wheeling Mold & Foundry Company.**—The new plant under erection for some time by the Wheeling Mold & Foundry Company on Wheeling Peninsula, at Wheeling, W. Va., is about completed and will be started up within two weeks. The new works will be equipped to turn out castings of the largest size, and the concern will make a specialty of building rolls, tin plate mills, sheet mills and in fact rolling mill machinery of all kinds. The new plant is equipped with modern tools and is one of the finest foundries in the country.

Arrott Brothers & Co. have organized at Pittsburgh the United States Sanitary Mfg. Company, with a capital stock of \$100,000, and have bought 8½ acres of land at Colonia, on the Pittsburgh & Lake Erie Railroad, about 20 miles from Pittsburgh, where the new concern will put up a plant, the product of which will be enameled bathtubs and other sanitary and enameled iron articles. The plant will be a large one, with a capacity for making about 100 tubs a day, and will employ about 125 hands.

W. S. Accles, London representative of the Nile-Bement-Pond Company, is visiting this country. He is stopping at the Manhattan Hotel.



## The Machinists' Strike.

### Chicago.

CHICAGO, July 31, 1901.—(By Telegraph.)—The machinists' strike in this city is rapidly coming to an end. Quite a number of shops that had been idle for eight weeks received so many applications from their men for employment that they were able to start up on Monday of this week. The daily papers allege that the strikers have been able to secure such concessions from their employers that they have in a sense gained a victory. This is not correct. The employers have taken back their men on the same basis of hours and wages existing when the strike was declared. The union has absolutely failed to receive recognition in the majority of shops now starting up. Every effort was made to save something from the defeat, the men endeavoring at least to have shop committees recognized, but even this was refused. They now regret exceedingly that they did not accept the 6¼ per cent. advance which was offered them as a basis of a settlement to avoid a strike. The employees of the Allis-Chalmers Company and two or three other large establishments are still holding out in the hope that the other members of the union may be able to sustain them so that a strong fight can be made on these concerns. This, however, is regarded as a forlorn hope, and it is now believed that while the strike may not be officially called off with regard to such shops their men will quietly but gradually apply for their old positions, and these works will soon be found running with their full force. The shops now running have received applications from many more machinists than they are able to employ. This shows that the men are eager to get back to work.

### The Machinists' Strike Over at Milwaukee.

In reply to our inquiry we have the following statement from Irving H. Reynolds, secretary of the Milwaukee Manufacturers' Association, under date of July 24:

"The Allis Works, Pawling & Harnischfeger, Christensen Engineering Company, Browning Mfg. Company, Kearney & Trecker, Milwaukee Electric Company, and most of the smaller shops are running with a practically full force, nearly all of the men having returned to work. At Filer & Stowell's and Vilter's special effort seems to have been made to keep the men from returning, but both shops have a considerable number of men at work, the Filer & Stowell Company having over 60 per cent. of their full force, and it is safe to say that the machinists' strike is a thing of the past as far as Milwaukee is concerned. No concessions have been granted by any of the manufacturers as far as I know. All of the shops which are members of the local Association of Manufacturers are running on a schedule which provides for 55 working hours per week from June 1 until October 1 (five days of ten hours and 5 hours on Saturday), and a 59-hour weekly schedule from October 1 to June 1 (five days of ten hours and nine hours on Saturday). This schedule is not to be considered in any way as a concession, but was brought about entirely by the manufacturers themselves, as they wished to work all shops on a uniform schedule. Some of the shops had previously been working 54 hours per week, some 55, some 59, and some 60. The schedule given above provides for an average week of 57 2-3 hours, and by providing for a Saturday half holiday during the warm months it is found very acceptable, both to the workmen and to the employers."

### Other Western Cities.

The machinists at Minneapolis returned to work on July 22, although a considerable minority of the local union favored continuing the strike indefinitely.

On the same day the men returned to work at Kenosha, Wis., having decided that it was useless to protract the struggle.

Advices from Moline, Ill., state that the strike ended there at the same time, the machinists voting in favor of returning to work. In some of the shops the machinists were required to make individual contracts which would bar them from causing further trouble to employers for some time.

### Ansonia.

A communication from the Farrel Foundry & Machine Company of Ansonia states:

"As we have been widely advertised, and as many statements in the papers are wholly misleading, we have thought it advisable to report to the National Metal Trades Association the exact basis of settlement. The men went out on a 57-hour schedule and return on a 59-hour schedule (55 hours for the summer months). Our men return under exactly the conditions, except for the above, which prevailed prior to May 20, none of their demands having been granted. The schedule of hours and declaration of the National Metal Trades principles have been posted in the shop for some weeks, and copies of these were given to our men. Their demands dwindled until finally all they asked was that we remove all the men whom we had imported from New York and stop injunction proceedings. The latter was no concession on our part, as there was no occasion for an injunction when the strike was over. A canvass showed that only a very few of the imported men cared to remain after the old men came in, and from experience we knew that these men would only remain for a short time. We have refused to take back under any conditions one of the chief agitators, and shall keep in our employ the only two men who have taken positions here from town. We have assured our men from the first of fair and honorable treatment, but are as ready to-day as ever to refuse unreasonable and arbitrary demands."

### Plainfield.

The Pond Machine Tool Works have posted notice that the men will receive 60 hours' pay for 57 hours' work. These men went back without any concession whatever.

### New Britain, Conn.

The strike is ended. The old men are seeking their positions.

### Seranton.

The men have gone back. The men have returned without concessions.

## The Coe Brass Company Buy the Chicago Brass Works.

Advices from Kenosha, Wis., state that the plant of the Chicago Brass Works has been transferred to the Coe Brass Company of Torrington, Conn., for a consideration of nearly \$400,000. While the deal has been talked of for something like a year, the announcement of the sale came as a great surprise. The deal is an absolute sale, the Coe Brass Company having taken possession of not only the plant in Kenosha, but also of the brass store and office business of the company in Chicago. Many of the old men who are now with the brass works will remain, among the number who will have charge under the new management being F. L. Titworth and J. K. Fletcher, the present superintendents of the plant.

With a capital stock of more than \$3,000,000, the Coe Company have planned to make the Kenosha plant their Western outlet, and it is stated to be their purpose to control the entire trade west of the Mississippi River with brass from Kenosha. In order to do this elaborate arrangements are being considered for the enlargement of the plant.

The immediate demand is for room, and in order to fill this demand all the property now owned by the company will be covered with buildings. The present mill will remain, but it will be used largely for the manufacture of brass tubing, which has always been considered only a side issue by the former owners of the plant. A large mill will be built directly west of the present mill, and added to this another new building will be erected for the manufacture of copper.

**Information Wanted.**—A correspondent desires to know who produces machinery for making paper cap tubes.

The drafting rooms of the American Bridge Company, at Youngstown, Ohio, are to be removed to the Pittsburgh offices of that concern.



## QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING JULY 31, 1901

| Cap'l Issued. |                                  | Thursday.     | Friday.       | Saturday.     | Monday.       | Tuesday.      | Wednesday.    | Closing quotations. | Sales.  |
|---------------|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------------|---------|
| \$10,000,000  | Am. Bicycle Co., Com.....        |               |               | - 4 1/2       |               |               | - 4           | 4                   | 400     |
| 20,000,000    | Am. Bicycle Co., Pref.....       |               |               |               |               |               | -20           | 20                  | 200     |
| 10,000,000    | Am. Bicycle Co., Bonds.....      |               |               |               |               |               |               |                     |         |
| 29,000,000    | Am. Car & Foundry, Com..         | 29 -29 1/2    | 29 1/2-30     | 29 3/4-30     | 30 -30 1/4    | 29 3/4-30     | 29 3/4-29 3/4 | 29 1/2              | 6,400   |
| 29,000,000    | Am. Car & Foundry, Pref. §..     | 82 1/2-83     | 83 -83 1/2    | -83 1/4       | 84 1/4-84 1/2 | -85           | 84 -84 1/4    | 84                  | 1,700   |
| 7,500,000     | Bethlehem Iron†.....             | -61 1/2       | -61 1/2       | -62           |               | -62           |               |                     | 473     |
| 15,000,000    | Bethlehem Steel††.....           |               |               |               |               | -23           |               |                     | 1,400   |
| 7,974,550     | Cambria Iron, Phila.*.....       |               | -48           |               |               | -48           |               |                     | 117     |
| 16,000,000    | Cambria Steel**.....             | 23 3/4-23 3/4 | 23 1/2-23 3/4 | 23 3/4-23 3/4 | 23 3/4-23 1/2 | -23 1/4       | -22 3/4       |                     | 2,645   |
| 17,000,000    | Colorado Fuel & Iron.....        | 96 1/4-97     | 97 1/2-99 1/2 | 99 1/4-99 1/2 | 100 -102      | 100 -101      | 98 -99 1/4    | 98                  | 5,900   |
| 24,410,900    | Crucible Steel, Com.....         |               |               |               |               |               |               |                     |         |
| 24,399,500    | Crucible Steel, Pref.....        |               |               |               |               |               |               |                     |         |
| 1,975,000     | Diamond State Steel§§.....       |               | - 3           |               | - 6 1/2       | - 6 1/2       |               |                     | 146 1/2 |
| 15,000,000    | International Pump, Com..        |               | -37           |               |               | -38           |               |                     | 200     |
| 8,850,000     | International Pump, Pref..       |               |               |               |               |               |               |                     |         |
| 11,000,000    | International Silver.....        | - 6 1/4       |               |               |               | - 6 1/4       | - 6           | 6                   | 300     |
| 10,750,000    | Penna., new, Com., Phila..       |               |               |               |               |               |               |                     |         |
| 16,500,000    | Penna., new, Pref., Phila. §.    |               | -84           | -84           |               | 85 -85 1/2    |               |                     | 255     |
| 12,500,000    | Pressed Steel, Com.....          | 41 1/2-43     | 43 -43 1/4    | 42 3/4-43     | 43 -43 3/4    | 43 1/4-43 3/4 | 42 -43 1/4    | 43 1/4              | 5,700   |
| 12,500,000    | Pressed Steel, Pref.....         |               | 85 1/4-86     |               |               | -86           | 83 1/4-86     | 85 1/2              | 800     |
| 27,191,000    | Repub. Iron & Steel, Com..       | 19 1/4-19 3/4 | 19 1/2-20     | 19 1/2-20     | 20 1/4-20 1/2 | 20 -20 1/4    | 19 1/2-20     | 19 1/2              | 7,300   |
| 20,306,900    | Repub. Iron & Steel, Pref..      | 73 1/2-74     | 74 -74 1/4    | 74 1/2-75     | 75 -75 1/2    | -75 1/4       | 74 1/2-75 1/4 | 74 1/2              | 3,200   |
| 7,500,000     | Sloss-Sheffield S. & I., Com.    |               | 33 1/2-34     |               | -34           |               |               |                     | 600     |
| 6,700,000     | Sloss-Sheffield S. & I., Pref. § |               |               | -80           |               |               |               |                     | 100     |
| 20,000,000    | Tennessee Coal & Iron.....       | 61 -62 1/2    | 62 -63 1/2    | 62 1/2-63     | 62 1/4-64     | 62 1/2-63     | 62 -63 1/2    | 62                  | 13,300  |
| 1,500,000     | Tidewater Steel  .....           |               | 6 1/2- 7      |               |               |               |               |                     | 225     |
| 506,473,400   | U. S. Steel Co., Com.   .....    | 40 -42        | 42 -43 1/4    | 42 3/4-44 1/2 | 45 1/4-46 1/2 | 44 1/2-45 1/2 | 42 1/2-44 1/2 | 42 1/2              | 530,800 |
| 508,486,300   | U. S. Steel Co., Pref.   .....   | 88 1/2-90 1/2 | 91 -92 1/2    | 92 -94 1/2    | 94 1/4-95 1/2 | 94 -94 1/2    | 90 1/2-94     | 91                  | 227,800 |
| 1,500,000     | Warwick I. & S.  .....           | 7 1/2- 7 1/4  |               |               |               |               |               |                     | 50      |

Preferred stocks 7% cumulative unless otherwise stated. § 7% Non-Cu. §§ New stock. | Par \$10. †† Par \$50. §1 paid in. || Authorized Capital \$550,000,000 Common; \$555,000,000 Preferred; \* Par \$50. \*\* \$10.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph.

**Bonded Indebtedness:** American Bicycle Co., \$10,000,000 sinking fund gold debentures 5%; Cambria Iron Co., \$2,000,000 6% debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Diamond State Steel Co., property leased from Diamond State Steel Co. at 4% on \$1,000,000, \$6.25 on Steel stock paid in, \$1.25 called for June 1st, total capital \$2,000,000; International Pump; Blake & Knowles S. P. Co. \$1,000,000 6%; Tennessee C. I. & R. R. Co., \$8,367,000 6%, \$1,114,000 7%, \$1,000,000 7% cu. pref.; Pennsylvania Steel, \$1,000,000 5% Steelton 1st, 1917, \$2,000,000 5% Sparrow's Point 1st, 1922, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,851,000 5% maturing 1907, interest and principal guaranteed by Bethlehem Steel Co.; Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co., Col. Fuel Co. Gen. Mort. 6% \$880,000, Col. Coal & Iron Con. Mort. 6% \$2,644,000, Col. Fuel & Iron Gen. Mort. 5% \$2,674,000, also outstanding \$3,000,000 preferred stock; Sloss-Sheffield St. & I. Co., Sloss I. & S. first mortgage 6%, \$2,000,000, Sloss I. & S. general mortgage 4 1/2% \$2,000,000. U. S. Steel Corporation \$304,000,000 5% gold bonds, also Am. S. & W. Co. \$130,656, Federal Steel Co. \$9,822,000 Illinois 5%, \$7,417,000 E. J. & E. R. R. 5%, \$1,600,000 Johnson 6%, \$6,732,000 D. & I. R. R. 5%, \$1,000,000 2d D. & I. R. R. 6%, \$10,000 land grant D. & I. R. R. 5%; National Steel \$2,561,000 6%

## Iron and Industrial Stocks.

The market has been dominated entirely by the strike situation. The result of the conference on Saturday led to a sharp advance on Monday, but it ceased when the impression was created that syndicate interests were marketing largely. To-day the prices declined again on the possibility that the peace propositions may fail of confirmation by the Executive Board of the Amalgamated Association.

|                                      | Bid.   | Asked. |
|--------------------------------------|--------|--------|
| E. W. Bliss, common.....             | 145    | 152    |
| E. W. Bliss, preferred.....          | 130    | 140    |
| Cramp's Shipyard stock.....          | 83     | 85     |
| Dominion Iron & Steel Company.....   | 30     | 30     |
| Empire Iron & Steel, common.....     | 4      | 5      |
| Empire Iron & Steel, preferred.....  | 33     | 44     |
| National Enam. & St., common.....    | 23     | 27     |
| National Enam. & St., preferred..... | 83     | 87     |
| New Haven.....                       | 5      | 5 1/2  |
| Otis Elevator, common.....           | 33     | 35 1/2 |
| Otis Elevator, preferred.....        | 97 1/2 | 98 1/2 |
| Pratt & Whitney, preferred.....      | 85     | 90     |
| U. S. Cast Iron Pipe, common.....    | 6 1/2  | 7      |
| U. S. Cast Iron Pipe, preferred..... | 34 1/2 | 35 1/2 |
| U. S. Projectile.....                | 119    |        |
| Va. C. I. & C., stock.....           | 7      | 9      |
| Va. C. I. & C., bonds.....           | 38     | 42     |
| H. R. Worthington, preferred.....    | 110    | 112    |
| American Can Company, common.....    | 23 1/2 | 24     |
| American Can Company, preferred..... | 75     | 75 1/2 |

The Philadelphia News Bureau reports: The increase in capital of the Conemaugh Steel Company from \$5000 to \$29,000,000, notice of which has just been filed at Harrisburg, is in line with the reorganization of the Cambria Steel Company. The amount of the Conemaugh Company's capital was fixed at \$29,000,000 because, when the merger between the two companies is effected, the Conemaugh's \$29,000,000 and the Cambria's present \$16,000,000 capital will give the \$45,000,000, the amount of the Cambria Steel stock to be issued under the reorganization plan. The other \$5,000,000 of the Cambria's new \$50,000,000 capital, as already announced, will remain in the treasury. The consolidation of the Cambria & Conemaugh companies will be accomplished on August 15, a meeting of the Cambria stockholders having been called for 11 o'clock, and the Conemaugh stockholders for 12 o'clock, resolutions providing for the merger to be offered at each meeting. The consolidation will be in the nature of a contract whereby, in considera-

tion of the transfer by the Cambria Company of their property and assets to the Conemaugh Company, authorized at a recent meeting, the Conemaugh Company will issue to the Cambria Company in payment for property thus transferred, \$16,000,000 in Conemaugh full paid shares and \$29,000,000 in Conemaugh partly paid shares, thus making the full \$45,000,000 that is to be outstanding. The \$29,000,000 Conemaugh shares issued \$27.50 paid have since had \$2.50 per share added, and the remaining \$20 will be payable August 15.

**Dividends.**—The Bethlehem Steel Company have declared a dividend of 25 cents per share, payable August 13.

## Russia's Iron Production.

According to the Russian Iron Trade Association the production of pig iron in 1900 was 2,895,636 metric tons, of which 1,504,207 tons were made in the Southern provinces, 822,483 in the Ural, 290,177 tons in Poland, 232,993 in the Central provinces, 35,035 in the North and 1741 tons in the Southwest. The production of puddled iron was 638,649 tons, the Ural leading with 439,760 tons, followed by Poland with 81,194 tons, and the central provinces, with 69,193 tons. The production of rolled iron, in the form of bars, shapes, sheets, &c., aggregated 567,567 tons, of which 278,989 tons are credited to the Ural district, 126,607 to Poland, 72,841 tons to the North, 46,373 to the South, 40,914 tons to the center and 1843 tons to the Southwest. The output of steel ingots was 1,830,260 metric tons. The South, including the provinces of the Don, of Ekaterinoslav, Tauride and Kherson, produced 1,073,128 tons of ingots and 857,424 tons of shapes, plates, rails, tires, &c. Poland followed with 260,481 tons of ingots and 207,274 tons of rolled shapes. The Ural, including the government districts of Peron, Oufa, Orembourg, Viatka and Vologda, made 229,872 tons of ingots and 184,875 tons of rolled products. The center, including the government districts of Nijni-Novgorod, Vladimir, Riazan, Tambov Penza, Moscow, Toula, Kalouga and Orel, produced 135,261 tons of ingots, and 125,580 tons of rolled material. The North is credited with 131,518 tons of ingots and 87,656 tons

of rolled products. It includes the government districts of St. Petersburg, Olonetz and Courland. The total production of steel rolled articles was 1,462,809 metric tons.

## The New York Machinery Market.

NEW YORK, July 31, 1901.

In standard machine tools demand during the last week has been very slow. It has been the quietest week of the summer season. Regarding the cause of the falling off of inquiry, dealers gave all kinds of excuses, the hot weather and the steel strike being the favorites. Under existing conditions news of projected enterprises that might eventually require machinery was hailed with joy in the trade, and there was a little of such news.

Foreign business is almost *nil*. From all points of Europe demand has continued to fall off rapidly. From Germany scarcely any orders whatever are received. The large German houses, who have been practically entirely engaged in the sale of American built machine tools, are now forced to look to the handling of German tools for their profit. One very prominent house of this type are now bending their energies in the direction of Russia, where they are selling German tools to good advantage. The recent trouble between this country and Russia over tariff matters has worked very unfavorably against American machinery builders, as there is now a discriminating duty of fully 30 per cent. against American built tools and in favor of Germany. The oft repeated cry of high prices is still held over the heads of the American machinery builders. German dealers claim that it is practically impossible to do business with American tools at present prices. German tools, which are far in advance of those built a short time ago, are now being offered by the builders at prices much lower than those asked by builders in this country. Representatives of the European houses hold that the American trade cannot expect to regain any of their foreign business until they have made a substantial cut in prices. Another unfavorable condition is presented in the present financial stringency existing in Germany.

Probably the most interesting bit of news received in the trade during the week was the announcement that the Baldwin Locomotive Works have completed plans for a new machine shop which is to be erected in connection with the present plant at Philadelphia. The shop is to be six stories high and will contain a large quantity of the lighter classes of machine tools. The building is to be L shaped, 57½ feet wide, and extending 316½ feet one way and 208 feet the other. It is to be a steel and brick structure. Work will be commenced immediately.

Some time ago mention was made in this column of the fact that the Morse Twist Drill & Machine Company intended adding to their New Bedford, Mass., plant. We are informed on good authority that this work is now going ahead and that plans have been completed.

We are informed that the equipment for the new Readville, Mass., shops of the New York, New Haven & Hartford Railroad has not been purchased as yet. A short time ago this road issued specifications for a long list of machinery to be installed in this plant. Bids were submitted, but nothing has been done as yet in the way of actual purchasing. The buildings are now being erected and the plant will be one of the largest systems of car and repair shops in this section of the country.

There are a number of other fair sized railroad shop propositions before the trade that were submitted some time ago and have not been settled as yet.

Among the improvements proposed by the Central Vermont Railroad, who have recently been purchasing a good sized lot of machine tools, is the erection of a \$400,000 grain elevator at New London, Conn.

The Timken Roller Bearing Axle Company of 1769 Broadway, New York, have plans prepared for a new factory building which will be erected as soon as a site has been decided upon. Negotiations are under way for a suitable location at Camden, N. J., but that city has not been definitely decided upon. It is intended to manufacture roller bearing axles on a large scale. L. M. Preston is the general manager of the company.

One of the largest orders ever placed for forges has just been awarded to the Buffalo Forge Company of 39 and 41 Cortlandt street by the Pennsylvania Railroad. The order calls for 32 of the heaviest size of down draft forges built by the Buffalo company. They are to be installed in the "Meadows Shops," which are located directly outside of Jersey City in the Hackensack meadows. The Buffalo Company also received an order for 12 of the down draft forges from the Singer Mfg. Company of Elizabethport, N. J.

**Catalogues Wanted.**—The American Machine & Foundry Company of Hanover, Pa., suffered a severe loss in the destruction of their machine shop by fire. Since their catalogues were destroyed they request that duplicates be sent to them.

## Central American Notes.

SAN JOSE, C. A., July, 1901.—The new export duties imposed at Panama, and in fact at all the ports of the Colombian republic, are to be paid in gold. This is a new departure for Colombia, and with Chile, Venezuela and Costa Rica makes the fourth Spanish-American republic to make overtures to the gold standard. At the same time it is doubtful what policy will prevail in a commercial or other line in Colombia within a month or two, for the revolution is far from being quelled, and is doing very great damage to the business and general interests of the country. A great deal of mining machinery brought from the United States for the Cauca gold mines is stopped at Cartagena, Colon and Panama, as the interior roads are still in the hands of the revolutionists. The projected railroad on the Magdalena is, of course, at a standstill, as are the two lines on the Pacific.

On the other hand the neighboring republic of Ecuador is peaceful and is steadily working to bring modern ideas and modern improvements to its doors. A great deal of American machinery, rails and general railway equipment has come to the port of Guayaquil for the Quito & Guayaquil Railroad, now building, under the management of American engineers. This road will open up the rich country of the interior as far as the capital, which is rapidly being converted into a modern city under the auspices of General Alfaro's government.

In certain quarters much has been said about the possibility of an American protectorate over the republic of Honduras, but whatever this may mean in a quarter of a century or so, it is quite certain that at present all the fighting people in the country are for independence, whatever a handful of schemers may say to the contrary. As a rule the people at large are quick enough to adopt those of our methods which please them, but no one should honestly mistake this for a desire to be annexed to the United States, for it is easily observable that the Hondurans have imbibed much of the present spirit of the Cubans in their dealings with us. Although Honduras is a good country to invest in, whether it be railroads, mines or general business, no one should be led to believe that soon after he has interests in the country said republic will be flying the American flag, for he will find that his "friends" here misled him for their own personal gain exclusively.

A number of prominent Central Americans are leaving this month for a visit to the Pan-American Exposition at Buffalo, where every one of these republics has good exhibits of the natural products which go so far to make this one of the richest sections on earth. It is probable that the presence of South and Central Americans at this exposition will give new life to the several projected railroads in these countries. For the first time these people will be able to judge of all the material and general advantages to be derived from quick and ample transportation facilities. Another advantage which will be mutual will be the rapid substitution in their buildings of iron and steel for wood and similar materials. To-day it is still rare to see iron roofs on houses in these parts, although here and there a Government storehouse or custom house is partly built of iron and steel brought from the United States or Great Britain, and less often from Germany and Belgium.



## The Chicago Machinery Market.

1205 FISHER BUILDING, July 29, 1901.

It might be expected that the adverse influences now prevailing would seriously affect business in the machinery line. Labor troubles, excessive heat, drought over the greater part of the West and much damage to growing crops would seem to be depressing factors in manufacturing circles, or at least more calculated to induce caution among purchasers than confidence in the future. Curiously, however, the machinery trade is not depressed, but is much more active than usual in mid-summer. This may be partly due to the inertia of the very great volume of business done in all lines through the winter and spring. It is certain that a widespread feeling that the country had entered on a long career of great prosperity was one of the results of the fine commercial and financial conditions ruling through the first half of the year. This gave birth to many projects which are now maturing and will therefore not be abandoned for such temporary matters as labor troubles and a shortage in the crops of one season.

Good reports are received from manufacturers of all classes of machinery. The demand continues strong for heavy engines, while the outlook for mining machinery is very encouraging. Medium sized and small engines are selling much more freely than a few weeks since. They are in particularly good demand for running electric plants, but all sorts of manufacturing establishments seem to be in need of this description of power. Makers of gas and gasoline engines are also securing a great deal of business. The gas engine trade, in fact, seems to be one of the most promising branches of the machinery trade, as the number of manufacturers is steadily increasing, and they all secure orders enough to keep them actively employed as soon as they get in the market. Power transmission appliances are, of course, in active demand, in harmony with the condition of business in engines.

### Machine Tools.

Although the machinists' strike has not yet been ended in Chicago, and quite a large number of establishments have been badly hampered if not completely closed by the molders' strike, the demand for machine tools is far from stagnant. Some of the dealers report as heavy a trade in July as in any month of the year. Others have had a fair trade running beyond their expectations for the midsummer, while a few report a little experience of the ordinary July dullness. Taking the trade throughout, the tone is decidedly cheerful and the future is regarded with hopefulness, not to say confidence.

Manning, Maxwell & Moore had a good trade in July, but not as large as they would like to see it. July in their experience has usually been a dull month. Nevertheless, they have had a good business from the country and have found the railroad demand keeping up very well. They have suffered considerable inconvenience from the machinists' strike, which has cut off the delivery of machines for which they have had a particularly good demand. An interesting event during the month was the receipt of a small order from the Rock Island Arsenal, as a reminder of the great list of tools for which the Government received bids many months since.

Hill, Clarke & Co. report the best year up to date in the history of the Chicago house. The various strikes and labor troubles have had no effect on their trade. The month of July was exceedingly good. Quite a number of contracts were closed which had been hanging for some time. Numerous small shops have been started for which they have furnished the equipment. They have also received considerable business from railroads. The demand has been especially good for the high grade machine tools for which they are selling agents.

The Marshall & Huschart Machinery Company report an exceedingly good business for July, running considerably ahead of June in volume. They have found quite a sharp demand for such machine tools as they carry in stock. Much more difficulty has been experienced in securing tools from factories than in getting orders for them. They note a particularly strong inquiry for large

lathes. The factories now starting up after settling the machinists' strike are, of course, unable to turn out products immediately up to their capacity, and are so crowded with work that in a number of cases shipments cannot be promised for three or four months. The company are looking for the continuance of good business, but are particularly confident of a heavy trade in September.

McDowell, Stocker & Co. report a very good month's business, well up to the average of the year. Included in the business was a contract for a full outfit of iron working machine tools, making four full carloads, for the G. A. Crosby Company, Limited, of Ontario, who are erecting an establishment at Sarnia, Canada, for the manufacture of can making machinery.

Charles H. Besly & Co. also report very good business. They are receiving many orders for chucks, vises, power hack saws and general supplies from many concerns that are closing down for their annual repairs. They are still working overtime at their factory at Beloit, Wis., and have added many new machines to its equipment in their endeavor to increase the output. They report that they have never had so many orders for Gardner grinders and Besly band machines as at present. They have made recent shipments to New York, Pennsylvania, New Jersey, Massachusetts and Rhode Island. Special attention is called to their new spiral paper circles to be used on Gardner grinders. They are now able to produce abrasive circles suitable for work on steel, cast iron, drop forgings, malleable iron, aluminum and the alloyed metals, gutta percha and wood, and have thus wonderfully increased the field for these grinders.

The Standard Pneumatic Tool Company report business in Little Giant pneumatic tools running 40 per cent. larger than at the corresponding time last year. They are receiving heavy orders from the South and West, and are having a notable increase in business from their branch in Germany. They are running their factory to full capacity and will be obliged to increase it to take care of their expanding trade. They have had no trouble with their employees, who have continued steadily at work. President E. N. Hurley has just returned from an extensive European tour and reports the prospects for trade in pneumatic tools never more encouraging than at present.

### Miscellaneous.

Henry E. Pridmore reports orders for molding machines coming in briskly, many of them from unexpected buyers. Railroad shops are developing into good customers for machines to manufacture brake shoes, journal boxes, &c. The new letter copying press just brought out is proving a source of large business. Although the foundry has been closed by the molders' strike, this is not interfering with the operation of the machine shop, which is not only running on full time, but is overcrowded with work.

The Northampton Emery Wheel Company are finding their business running in excess of that of last year. The trade of this company covers such a variety of manufacturing establishments that the labor troubles in a few branches have not affected their general business.

The Maywood Foundry & Machine Company are turning out a great deal of work, notwithstanding the strike of the molders in their foundry. They are able to have some molding done, but the machine shop is running on full time and a great deal of work has been secured. The company are building quite a large equipment of molding machines for the Buckeye Malleable Iron & Coupler Company of Columbus, Ohio, and are also busy on a large equipment of molding machines for the new American Malleable Casting Company of Chicago Highlands, Ill. They are also building three 50 horse-power gas engines for the latter company, to be used in operating their works.

The Stillwell-Bierce & Smith-Valle Company, manufacturers of pumps and hydraulic machinery, are having more business offered them than they can handle. They find a heavy demand for pumping machinery from mining companies and manufacturing plants, as well as from small towns and villages putting in water



works. They have just received an order for pumps from the Iron Mountain Railway Company's new shops at Baring Cross, Ark.; also for the German-American Beet Sugar Company's plant at West Bay City, Mich. They are shipping a large pumping outfit to the Consolidated Mining & Refining Company, Chihuahua, Mexico.

Rainier & Williams, dealers in new and second-hand machinery, report a steady business in engines, boilers and pumps. July was a month of fair trade. They have just shipped a 100 horse-power engine to Kansas City and a 14-inch centrifugal pump to Rock Island. They have received an order from Texas for an engine and boiler to be shipped immediately.

The Moloney-Bennett Belting Company report an exceedingly large trade in belting. The demand during July came from a very wide range of country and from all classes of manufacturers.

The Charles A. Stickney Company, manufacturers of the Stickney gas engine, St. Paul, Minn., have removed their Chicago office from the Chamber of Commerce Building to the Monadnock Building. The office is in charge of R. J. Randolph and C. C. Jones.

### Cincinnati Machinery Market.

CINCINNATI, OHIO, July 27, 1901.

The last act in the machinists' strike is over, and the curtain has been rung down on the scene. The closing feature was in the United States Court a few days ago, when the application for permanent injunction against the strikers came up for hearing. Business agent Schilling of the striking machinists put in the plea on behalf of the strikers that as long as the strike was ended and the fight given up by the workmen that there existed no longer the necessity—if it ever had existed—for the enforcement of the injunction. The attorneys for the plaintiffs endeavored to have this plea set aside and the injunction made permanent, but the court ruled adversely and the case was thrown out of court.

It is pretty hard to state exactly what the effect has been on the machine business in this city. The strike occurred at a time of year and under a condition of trade which rendered the odds strikingly in favor of the employers, and it is a question if more than a very few of them were actually hurt by the enforced cessation of business. In the case of the engine builders some orders have been turned away, but as all the shops are now running as usual it looks as though the men were out their nine or ten weeks' pay with nothing to show for their effort in behalf of the claims made. A few of the smaller shops made the concessions asked for by the men conditionally, and now that in the larger shops the men are working under the old conditions it is likely that the old arrangements will be reinstated in the smaller ones.

The most important happening in the machinery circles in this city in the past month was the letting of the contract for six of the auxiliary pumping engines for the new Cincinnati water works. The contracts were captured by the Holly Company of Lockport, N. Y. The first contract was for three self-contained vertical triple expansion, crank and fly wheel pumping engines, each for 25,000,000 gallons capacity in 24 hours. These are to be placed at the west end of the gravity tunnel for the purpose of pumping the water to the Eden Park reservoir. The figure at which this contract was taken was \$410,500. The other three engines were of similar description, except that they are of 12,000,000 capacity each. These are to be placed at the west end of the gravity tunnel and to be used for pumping water to the Eden Park tower and the Mt. Auburn tanks. The contract price is \$391,900. These prices include the necessary boilers and appurtenances. The same company also took the contract for an electric traveling crane, with motors and ways complete, the crane to be of not less capacity than 30 tons, and of sufficient strength to handle any of the weights which may be necessary. The contract price was \$11,000. In letting the contract the commissioners had to decide in a very close contest between the Laidlaw-Dunn-Gordon Company branch of

the International Pump Works and the concern which took the contract. The contract was let July 17.

The newest departure in the matter of machinery manufacture in this city is the Day-Kinhead Stoker Company of 1146 Harrison avenue. The company are operated by J. H. Day of the J. H. Day Company, and a Mr. Kinhead. They purchased the plant formerly occupied by the Cincinnati Radial Drill Company from the receiver of that concern, and are now operating it in the manufacture of an automatic stoker, primarily for use on locomotives, though they are also intending to push them for attachment to stationary steam boilers as well.

The Cincinnati Traction Company have recently secured options on property on the southeast corner of Fifth and Walnut streets, the entire lot so secured being about 140 x 60 feet, on which they propose to erect a modern 15-story office building at a cost of about \$1,000,000. It is not yet certain just when the work will be commenced, though it is regarded here as a certainty that it will be begun some time the coming fall.

The Hill & Griffith Foundry Supply Company have recently purchased the old Resor Stove Company's building, lying on the west of the C. H. & D. Railroad tracks. Some time ago they purchased that portion of the Resor plant lying on the east side, and they have been occupying that for some little time. With the addition of the building just purchased they will have the largest plant of that character in the country. It is their intention to occupy the entire plant at an early date.

The Hoeflinghoff & Laue Company have commenced work on their new foundry plant in Norwood. The company have 13 acres of ground just opposite the Bullock Electric Company's plant, and expect to have the works ready for operation by October 1. It is the intention to utilize the new shop for the making of the heaviest castings. The old shop on Front street will still be maintained and used for lighter castings and for architectural iron work. They are now making some very heavy castings for the Lane & Bodley Company, among which the heaviest now on hand is a fly wheel for a rolling mill engine. It will weigh close on to 140,000 pounds. Several other fly wheels that are being made for the same company weigh as much as 30,000 pounds.

The Bickford Drill Company report about 80 per cent. of their former force back at work, and within a very short time they expect to have the full number of men at their places again. The heat is cutting some figure in keeping the men away. They report business in the recent past, and for the present, specially good, and have taken quite a number of orders which will, together with the accumulation during the strike period, keep the shops at work for quite a little length of time. Almost all of their surplus stock has been disposed of. No export orders of consequence are coming in, practically all the trade being domestic. They regard the outlook as first-class.

John Steptoe & Co. report having lost quite a number of Eastern orders on account of the strike, but judging from the way orders are now coming in they expect to make up the loss in a very short time. One of the best recent orders which the firm have taken is for 22 of their machines to go to a London agency, the total amount of the contract being for \$7000. The outlook for fall trade is excellent.

Nearly all of the men of Dreses, Mueller & Co. are back at work, and the orders which are accumulating are being worked out as fast as possible. Domestic business is in a first-class condition, and outside of the fact that foreign trade is still dull there is not a dark spot on the horizon. Foreign trade, too, is somewhat better than it has been, and they are getting some very fair orders from England, also from Russia. Mr. Dreses, who keeps closely in touch with European conditions, is of the opinion that there will be an immediate revival of trade with Russia, the financial situation in that country being much brighter than at any time during the past year or so. One of the best recent shipments made by this firm consisted of nine large radial drills sent to a firm in Seattle, Wash.

The Cincinnati Milling Machine Company report their men almost all back at work, and say that trade is in a very flourishing condition. The outlook for domestic business is exceptionally good. The company regard the strike as settled for good, and no time will be lost in recovering from its effects.

Greaves, Klusman & Co. report all their men at work again and their shop running full time. The outlook and actual business from domestic sources is first-class, but with the exception of a little English trade the firm are having no business relations with foreign countries.

The strike hampered the business of the E. A. Kinsey Company considerably, and was the cause of their losing quite a number of orders, especially in the East, but business is recovering very rapidly, and the outlook is for a fine fall trade.

The Smith & Mills shop is running full time, with all the men back at work. Their report of business conditions and of the effect of the strike upon current trade does not differ materially from the average. The firm regard the outlook for fall business as fine.

The Rahn-Meyer-Carpenter Company report their men back at work again, and the shops running full time, trying hard to make up for the time lost by the strike. While the inconvenience suffered was considerable, yet the damage done to business was by no means permanent. The outlook for fall trade is splendid. They have just completed the manufacture of their first 26-inch engine lathes and are now offering them to the public for the first time.

Almost the entire force of Cordesman, Meyer & Co. returned to work last week, and the shops are now being run full time. The firm make wood working machinery, and are finding trade in that branch specially active just at present. Indeed, it is believed that the shops making this kind of machines were more seriously put out by the strike than those employed exclusively in the manufacture of iron working machines, the difference in activity being in favor of the wood working machinery.

The J. A. Fay & Egan Company have practically all of their men back at work and are running all of their shops at full time. Orders have been coming in very rapidly and the accumulation received during the strike period amounts to quite a volume of business. It will take some months for them to catch up with their orders again. Among the recent large contracts which they have taken has been one for a \$10,000 equipment for a desk factory just starting in London, England. As a result of the Paris Exposition they are now selling a very large amount of machinery to the railroad shop and car works throughout France, and some of the largest orders being placed on their books are coming from that source.

Smith, Meyers & Schneier report a first-class trade in Virginia, Tennessee, West Virginia and Florida for complete sawmill outfits. They have just shipped out two complete 8-foot band mills with all machinery pertaining and engines necessary for the plant. They went to a point in old Virginia. The contract price for these two machines was something in excess of \$15,000. The strike threw them very much behind in their work, and the deferred orders, together with the good run of current business, will keep them busy for some months to get reasonably well along again.

The Lane & Bodley Company are once again running their shops full time, with their full equipment of men. During the strike they refused quite a number of good sized orders, some of which are now coming back to them. The outlook for fall business is excellent. The company are not intending to rebuild their foundry, but are utilizing a portion of the space formerly occupied by that branch of their business for the extension of their machine shop.

The Houston, Stanwood & Gamble Company report a gain of 133 per cent. in 1900 and 1901 business, over the average sales from 1894 to 1898, inclusive. In order to take care of this increased volume of business they have been compelled to increase their capacity, and quite a number of tools have been added to their shop. The company were among the few whose men

did not strike on May 20 with the other machinists, consequently they were able to run continuously while other shops were shut down. They are just now finishing a pair of engines, to develop about 400 horse-power, for the Buena Vista Extract Company of Buena Vista, Va. They are also working on a contract for 18 engines, 10 for 125 horse-power and 8 of 175 horse-power, for the Allegheny Plate Glass Company, Pittsburgh, Pa., and on a pair of winding engines of 250 horse-power for the St. Joe Lead Company, Central, Mo. A pair of engines was recently shipped to the Dawson Fuel Company, Maxwell, Mexico, and to the Kellar Coal Company, Clinton, Ind. The agent of the company in New York City is now E. H. Ludeman, and through his exertions the Eastern trade of the company is being largely increased. The trade with Puget Sound has been very good lately, sales being made from agencies in Seattle and Portland.

The Weir Frog Company report trade extremely active with both steam and street railway companies. In fact, trade was never better than it is just at this season. The company are not pushing for foreign trade at all, owing to the fact that domestic business is all that they can handle.

The Tudor Boiler Company are having a remarkably good season, and orders are coming in from almost every section of the country which they cover. Among the recent contracts taken are one for 100 horse-power boiler for the Waukesha Sheet Steel Company, located at Waukesha, Wis. They have also just finished two 250 horse-power boilers for the Emlyn Iron Works Company, East Chicago, Ind. They have also constructed a 300 horse-power for the Block & Pollak plant at Steelton, this county. As a rule July has always been one of the dull months of the year, but the present month is proving to be one of the most active in the entire season.

The McIlvaine & Spiegel Boiler Company report a very fine trade and they have recently taken a large number of orders for steamboat boilers. They have now sufficient work to keep them for several months, and will have to decline anything for nearby delivery.

Domestic trade is cutting but a very small figure in their operations just at present with the Blymyer Iron Works Company, almost their entire output being taken by the Spanish Americas, in which countries they are finding conditions improving and trade first-class. Among the recent very good orders taken is one for a complete sugar mill outfit for Tehuantepec, Mexico. The order amounts to about \$18,000. They have recently made some very good shipments to Java and the British East Indies. Never before in the history of the concern did they have a better trade or outlook.

The J. H. McGowan Company report all their men back at work, and shops running at full time as usual. Among the recent orders which they have taken is one for a 3,000,000 gallon vertical pumping engine for the water works at Bluffton, Iowa.

The men of the J. M. Robinson Company are all back at work, and trade, especially in large corrugating machinery, is good. Among the recent orders that have come in is one from Jamestown, N. Y., for one of the heaviest machines they make.

The strike was a pretty serious matter with the Wals & Roos Punch & Shear Company, owing to the fact that their order books were well filled. They report that their men are all back at work and straining every point to catch up with the procession once more. The demand for heavy machines was never better than it is at this time. Among some of the recent contracts taken is one for some very heavy machines for the Stewart Iron Works Company, this city, also a good contract for Richmond, Va. They recently shipped out a heavy punch for the Hilo Railroad Company, Hawaii.

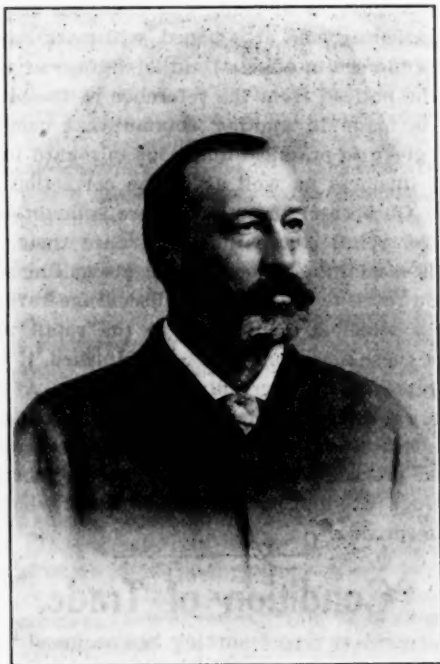
The second large pinion manufactured by the American Steel Castings Company, Chester, Pa., for the Carnegie Rolling Mills of Pittsburgh, Pa., was shipped last week over the P. W. & B. Railroad. It weighed 54,400 pounds.



## OBITUARY.

JAMES F. LEWIS.

One of the most popular and widely beloved men in engineering circles, James F. Lewis, died after a somewhat protracted illness last week. Mr. Lewis was born at Blandford, Mass., on May 26, 1840, and lived there until 1854, when he went to Bloomfield, N. J., returning to Westfield, Mass., in 1862. He enlisted at the first call in the Civil War in the Third Connecticut Volunteers, and was wounded at the battle of Bull Run. He went into the firm of Rand, Lewis & Rand, manufacturers of whips at Westfield, retaining his connection for



JAMES F. LEWIS.

several years. In the early seventies he became interested in iron mining at Amelia, N. Y., becoming superintendent of the Manhattan Mining Company. In 1881 he took charge as manager of the Quinnemont Coal & Iron Company at Quinnemont, W. Va., where the furnace was located. In 1884 he entered the employ of the Rand Drill Company, in whose development he took a conspicuous part. In 1892 he became general Western business manager of the Rand Drill Company, with headquarters at Chicago, and later built the new shop of the Canadian Rand Drill Company at Sherbrooke, Quebec, being the president of that company.

### NOTE:

COL. WILLIAM ELIOT BARROWS, president of the Welsbach Light Company, died July 30 at his home near Philadelphia, after a brief illness, aged 50 years. He was born in Hudson, Ohio, and after serving through the Civil War became connected with various commercial enterprises in New England and New York. At one time Colonel Barrows was assistant to the president of the Pullman Car Company and he was subsequently manager of the Hinkley Locomotive Works, at Boston.

## PERSONAL.

Charles G. Zug of Zug & Co., Limited, sheet makers, of Pittsburgh, has sailed for Europe.

George Stephenson, formerly at the Homestead Steel Works, has been made secretary to Nevin McConnell, superintendent of the Sharon Steel Company, Sharon, Pa.

Frank H. Buhl has resigned as a director of the Sharon Steel Company, of the Sharon Tin Plate Company, also as president of the Sharon Ore Company and of the Sharon & Butler Railroad Company. When these resignations have been ac-

cepted Mr. Buhl will have severed all official connection with the Sharon Steel Company and subsidiary interests. He continues, however, to hold a block of stock in the Sharon Steel Company.

Christian Wais, formerly president of the Wais & Roos Punch Shear Company, Cincinnati, Ohio, having resigned his official position in that corporation, is now actively perfecting plans for the establishment of an extensive manufacturing plant in the same city. Mr. Wais will have ample financial backing in the new enterprise, which it is expected will be ready for operation within the ensuing 90 days or as soon thereafter as arrangements for site and buildings, which are now under consideration, can be perfected. In the interval Mr. Wais' address will be 220 Goodman street, Cincinnati, Ohio.

Bernard Marron, former superintendent of the Bay View blast furnaces of the Illinois Steel Company at Milwaukee, Wis., has been made superintendent of the company's furnaces at South Chicago. John McDonald, foreman, succeeds Mr. Marron at Milwaukee.

W. S. Accles, representing the Niles-Bement-Pond Company in London, has arrived in this country on a brief visit.

W. P. Whiting, who has for six years been manager of the Chicago branch of Hill, Clarke & Co., has been appointed general superintendent of the Clinton Separator & Engine Works at Clinton, Iowa, and enters upon his new duties August 1. He is succeeded by R. H. Sammons, who has for some time been connected with the house.

J. J. Howden has been appointed purchasing agent of the Muskegon Traction & Lighting Company of Muskegon, Mich.

A. C. Stites has resigned his position as resident engineer of the Phoenix Bridge Company and of the Phoenix Iron Company in Chicago, to accept an engagement with Joseph T. Ryerson & Co. of Chicago. Mr. Stites opened the Chicago offices of the Phoenix companies nine years ago and has had charge of them since then.

John Machin, formerly superintendent of the Struthers Furnace Company, Struthers, Ohio, has entered the employ of the Republic Iron & Steel Company as foreman of the Hannah Furnace at the Valley mill, Youngstown, Ohio.

F. A. Estep, president of the R. D. Nuttall Company of Pittsburgh has sailed for a trip of six weeks in England, Germany, France and the Netherlands, combining business with pleasure.

Mrs. Sarah M. Boyd, widow of Francis Boyd, has been elected president of the Shadbolt & Boyd Iron Company of Milwaukee, Wis., to succeed her husband, who was the founder of the business.

Frank B. Ward is now the Pittsburgh representative for the Miles-Bement-Pond Company, with offices in the Park Building in that city.

John S. Onslar, superintendent of the blast furnaces at the Ohio works of the National Steel Company, Youngstown, Ohio, has resigned.

Howard K. Williams, formerly with the American Sheet Steel Company, at Mingo Junction, Ohio, has resigned and has accepted a position at the Duquesne Steel Works of the Carnegie Steel Company, at Duquesne.

The old established firm of Howson & Howson of Philadelphia, attorneys at law and solicitors of patents, announce that Charles H. Howson, attorney at law, and Henry Smith, solicitor of patents, have become members.

Oscar J. West, who has been resident engineer of the Phoenix Bridge Company at Boston, Mass., has been appointed Chicago representative of the Phoenix Iron Company and the Phoenix Bridge Company of Phoenixville, Pa.

On August 5, Sir William Van Horne, president of the Cuba Company of 80 Broadway, New York, will arrive in this country. It is expected that he will place important contracts for machinery and railroad equipment while here.

# HARDWARE.

**A** VERY healthful tone is often given to the market simply through a better understanding between manufacturers, which is based on personal acquaintance and informal meetings in a social way. Competition is frequently much more strenuous and unreasonable than it needs to be simply because the parties are strangers to one another and perhaps animated by a spirit of needless animosity. Not infrequently a manufacturer is surprised to find how amiable a person and how good a companion is one whom he has only known as a rival in trade. Competition must necessarily, under the laws of trade, remain competition, but it often loses its bitterness and something of its intensity, and becomes less unreasonable, because of personal relations between the parties.

The influence of this better understanding between manufacturers is frequently seen in the market without being recognized. We have in mind a leading line of goods in which competition between manufacturers, both East and West, has long been so fierce as to result in bringing prices down to an unprofitable level. Attempts at formal combination had often been made, which were repetitions of the old story, the agreements being made only to be broken. Altogether the situation was unsatisfactory and little money was made. A different condition of things now prevails. An understanding in regard to the extreme price at which orders should be accepted for present and future delivery has been reached and is being lived up to. This desirable state of things, we are advised, has been brought about by social meetings of the manufacturers, who have recently had several outings, thus utilizing the summer season for vacation purposes which contributed directly to business success. Those who are thus brought together regard themselves as members of a club, of the very existence of which the trade are unaware, but of which the improved condition of the market in this line is a direct outcome.

In another column a reference is made to a jobbing house which several years ago dispensed with the use of traveling salesmen, relying upon their printed catalogues, circulars, &c., for the cultivation of their business. The object of the change in method was to avoid the heavy expense attending the marketing of goods in the usual way, and in view of the saving thus effected the claim is made that it has been feasible to furnish the goods at lower prices than other jobbing houses. There was much doubt expressed by many as to the success of the experiment, but the fact that the policy has been adhered to for more than four years and is referred to as justifying the views which led to its adoption, indicates that it has been attended by some measure of success. It is certainly interesting to the trade at large as an experiment in the way of getting goods to the retailers at a minimum of cost.

In connection with a departure of this kind it would be of interest to know whether the saving in the cost of securing business is sufficient to justify a substantial reduction in the selling price. In order to a proper judgment as to the wisdom and practicability of the new policy it will be necessary to know whether quotations made by catalogue and otherwise without personal solicitation actually result in bringing in any-

thing like the same amount of business as would be secured by traveling salesmen. If the prices made on the printed page are sufficiently attractive they would naturally call out orders from careful merchants who desire to buy advantageously. In view of the wide prevalence of the custom of buying from traveling salesmen it would seem to be necessary that a substantial inducement in the way of price should be offered.

The Michigan Retail Hardware Dealers' Association occupy an honorable position among organizations which have been formed for the purpose of advancing retail interests. The annual meeting, which will be held in Detroit August 14 and 15, will doubtless be an influential gathering, and, it is hoped, will mark still further progress in certain efforts for the welfare of the trade. It will be noticed from the reference to the programme which is made in another column that consideration will be given to practical questions in regard to the conduct of business as well as to the correction of trade abuses. On both of these lines there is doubtless opportunity for retail merchants to advance their interests. There is something to be done in preventing encroachments on retail territory and to discourage various trade practices which are injurious to the retail merchant. Some of these may doubtless be diminished, if they can not be removed, by wise and united action. At the same time the consideration of improved and up to date methods, and the stimulating effect of a conference in which able and progressive men are brought together, is sure to be suggestive and helpful to merchants who are alert and enterprising.

## Condition of Trade.

Since our last report nothing has occurred to disturb the satisfactory and promising condition then existing. On the other hand, the situation has perceptibly improved in some of its main features. Chief among these is the termination of the drought which was working so much injury, especially to the corn crop. The coming of bountiful rains in the sections where they were most needed has done a great deal to relieve apprehension, and probably to secure throughout the country at large an average crop. The prospect of an early settlement of the strike of the iron workers is also having an excellent effect on the general feeling. The reaching of an understanding and the resumption of work in the mills affected by the strike will lessen the fear of a shortage of material, which has begun to be felt quite seriously in some directions, and at the same time will tend to stimulate business, as a disturbing factor is removed. Already in several lines the influence of the strike is felt in advanced prices, principally for Sheets, Tin Plates and related goods, but the influence of the stoppage of the mills has also been felt in other branches of the trade. The month of July has been quite an exceptional one in the volume of business transacted in Hardware and related trades. There has been a good deal of purchasing in liberal quantities, but not in a speculative way. Many merchants have recognized the danger of difficulty in getting orders filled and have bought so as to cover their requirements in good season. The volume of business, too, which the jobbers have been doing has been such as to keep their stocks pretty low, and it is generally conceded that the fall trade will open with a moderate supply of goods in the warehouses of the manufacturers, the bins of the jobbers and the shelves of the retailers. Prices meanwhile are, as a rule, very steady, and even strong. Manufacturers are cautious about accepting orders in view of



possible difficulty in executing them promptly on account of the scarcity of material or the overtaking of their facilities. There is a good deal of revising of quotations, but values, on the whole, are substantially unchanged. There is some complaint about collections, as not unusually happens at this season, but the general situation is regarded as eminently satisfactory and sound. All classes of the trade are looking forward to a good business during the remainder of the year.

### Chicago.

(By Telegraph.)

The bountiful rains which have fallen throughout the entire West during the past week have broken the long drought. The agriculture outlook has been greatly improved, and although a considerable portion of the corn and other fall crops has been damaged beyond recovery, nevertheless it is now expected a sufficiently good yield will be secured to keep the greater part of the West in easy financial condition. All business interests are looking forward to a fine fall trade. Jobbers report a continued heavy demand for all classes of Hardware. Their mails the past few days have been quite heavy and their facilities are kept busy up to the full standard. City trade is doing much this year toward keeping up the volume of business. The various houses report gains on July of last year, running from 50 to 100 per cent. An unusually large business has been done in Mechanics' Tools and other small articles which run into money and on which profits are good. Stocks of Tinware are badly broken, as might be expected with the shortage in Tin Plate. Manufacturers are advising their salesmen to be exceedingly cautious in taking orders, making every order subject to the ability of the factory to make shipments. The demand for Sheets and Tin Plate has been very strong and jobbers' stocks are now beginning to run short. It is almost impossible to secure some sizes. Sheets have been advanced from \$2 to \$3 per ton during the week, while Tin Plate has been marked up 25 cents a base box. Heavy Hardware jobbers are enjoying an unusually good business for midsummer. The labor troubles in the rolling mills have thrown a large demand on the jobbers for immediate shipment from stock. This business would be much larger if the jobbers were able to secure a larger supply of material, but their resources are also cut down by the curtailment of production by the mills. The demand for Wagon Stock is excellent and a good trade is being done in all other lines except Carriage Trimmings, for which the new season has not yet opened.

### St. Louis.

(By Telegraph.)

The entire Hardware trade unite in saying that the rains which have visited the West for the past few days will result in making the fall trade a most satisfactory one. The drought had reached a point where it was certainly causing immense worry, but this is now over and manufacturers and jobbers feel that they can safely go ahead in the manufacture and buying of goods for fall trade, and believe there will be a market for them. The heavy increase in business this week indicates that many dealers were holding back waiting to see some improvement in the crop outlook before placing their orders. The outlook is now regarded as being very encouraging, and a large fall trade is confidently looked for. Scarcity of goods continues in many lines, notably Sheets, Barbed Wire, Nuts, Bolts and Tinware. Prices in most lines are well maintained and collections are referred to as being satisfactory.

### Baltimore.

CARLIN & FULTON.—We have very little, if anything, of interest to communicate since our last letter. The heat throughout this section has been so intense that all business has been done with great discomfort, and trade would greatly improve were the thermometer to drop about 10 degrees.

While the West has been suffering for the want of rain, certain sections of our market have been com-

plaining of entirely too much, so it is hard to regulate the weather to suit all sections.

There has been a large demand for hot weather goods such as Refrigerators, Freezers, Window Screens and Doors, the demand having been perhaps larger than ever before.

There are no changes in prices to report, and we suppose it will be perhaps a week or ten days yet before we see much improvement in the demand for goods.

### Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—There is little change to report in trade conditions throughout the Pacific Northwest since our last. The Government report concerning growing crops issued yesterday refers to condition as well nigh perfect. Weather has been so far this summer all that could be asked for; day temperature mild and pleasant, and nights cool as in May.

Business for July is a long way ahead of average. Not for years has this midsummer month held up in volume of trade as it has this year. The prospect now is for the best fall business done in this section since the early 90's.

### Philadelphia.

SUPPLEE HARDWARE COMPANY.—Undoubtedly both the wholesale and retail merchants scattered throughout the country, especially dealers who come in direct contact with sections that have suffered from the extreme, indeed, unprecedentedly hot weather during the past three weeks, have experienced diminished trade. Salesmen report every evidence of this in the quiet of the country towns and the inactivity of merchants there located. Beyond this the customary vacation has become a fixed fact, which has branched out from the cities during recent years and extended to the smaller towns and districts, many salesmen thus taking a double vacation—one perhaps in retired quietness, or in the midst of country or at the seashore; the other in towns through which he travels without finding very much work.

But what of the manufacturers? Why, they certainly show every evidence of anticipating a heavy fall trade, and report that they are working upon large orders from various jobbers throughout the country. The fear of a cotton or wheat famine does not appear to have disheartened any of these large buyers, but it seems to be the determination of each to have a stock on hand to supply fall trade when it arrives.

There is no feeling of anxiety regarding the steadiness of fall prices. The present strike in manufacturing districts appears to have placed beyond doubt the steadiness of prices, which in many instances may result in advances, and while the crop situation causes much anxiety, the strike situation appears to have caused no anxiety with the trade throughout the country, unless it be in the loss of trade in districts immediately affected, and in their interest especially it is to be hoped that the strike will soon end. Collections are below the average.

### Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—Conditions in this section are not so favorable as they were when we sent you our last report two weeks ago. For the past six weeks very little rain has fallen in the South, and almost every part of the Southern country has suffered more or less from the drought.

The corn crop in many sections will be a complete failure. Cotton has been injured less than any other crop. If we could get a hard rain all over the South it would be of great benefit to corn, although the farmers claim the crop is ruined. The dry weather has already injured business to some extent, but it seems to have held up wonderfully well under the circumstances.

The unusual warm weather has created a great demand for some lines of summer goods. Collections are not well up to the standard.

### Louisville.

W. B. BELKNAP & Co.—Notwithstanding the drought and the extreme hot weather, which has been the all absorbing topic here—absorbent apparently of all moist-

ure except perspiration—business is steadily improving. The time of the year is coming when it seems that people are bound to have goods whether the thermometer is 100 or 99. It hasn't varied far from those figures here for a month or more.

Prices are well maintained and there are no signs of weakness anywhere. The suspension of work in certain of the steel mills will, of course, create a scarcity, which will certainly produce a firmer market. It is just as well for both sides that the men are not asked to stand up in front of a fiery furnace mouth in this sort of weather.

NOTES ON PRICES.

**Wire Nails.**—The demand for Wire Nails has been very satisfactory for the month past. Jobbers report that their sales have been equal to, if not in excess of, the month of June. The number of outside mills which are in the market or about to enter it is one of the features of the situation. Quotations remain unchanged, as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

|   |        |
|---|--------|
| To jobbers in carload lots.....             | \$2.30 |
| To jobbers in less than carload lots.....   | 2.35   |
| To retailers in carload lots.....           | 2.40   |
| To retailers in less than carload lots..... | 2.50   |

**New York.**—Local demand for Wire Nails keeps up to former proportions. This somewhat exceeds expectations. Quotations are as follows:

|                                     |        |
|-------------------------------------|--------|
| To retailers, carloads on dock..... | \$2.53 |
| Small lots at store.....            | 2.60   |

**Chicago, by Telegraph.**—Manufacturers of Wire Nails report the demand keeping up beyond all expectation. The breaking of the drought gives business new life and orders are coming in better from the afflicted sections. New contracts from other directions, especially from the South, are quite large. The jobbers are buying freely in anticipation of a good fall trade. Local jobbers also report a heavy business and state that they are still finding some difficulty in securing satisfactory deliveries from the mills. Carload lots are quoted at \$2.45 and small lots at \$2.55, with a concession to \$2.50 to best buyers.

**St. Louis, by Telegraph.**—The demand for Wire Nails is only fair. Outside mills are becoming a factor in the market, and as some of the new mills are shading prices, the market is a trifle unsettled. We quote carload lots to retailers at \$2.50, base, and less than carload lots at \$2.55 to \$2.60.

**Pittsburgh.**—Demand for Wire Nails is only fair and is mostly for small lots. Buyers regard as somewhat uncertain the future of the market as to prices, and in the possible event of lower prices are placing orders only for actual wants. There is no doubt that some of the independent Wire Nail concerns are shading prices to secure business. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

|   |        |
|---|--------|
| To jobbers in carload lots.....             | \$2.30 |
| To jobbers in less than carload lots.....   | 2.35   |
| To retailers in carload lots.....           | 2.40   |
| To retailers in less than carload lots..... | 2.50   |

**Cut Nails.**—At the monthly meeting of the Cut Nail Association prices for the month of July were reaffirmed for August. The meeting, though not a large one, is reported to have been harmonious, and action was taken to prevent irregularities in prices. The impression prevails in some quarters that while the scarcity of Steel continues and the market remains firm at present values lower prices for Cut Nails cannot be expected unless there should be a decline in Wire Nails. Quotations are as follows, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

|                             |                  |
|-----------------------------|------------------|
| Carload lots.....           | \$2.00           |
| Less than carload lots..... | \$2.05 to \$2.10 |

**New York.**—The local Cut Nail market is unchanged. New York quotations for carload and less than carload lots are based on the above prices, to which Pittsburgh freight is added:

|                                     |                |
|-------------------------------------|----------------|
| Carload lots on dock.....           | \$2.13         |
| Less than carload lots on dock..... | 2.18           |
| From store.....                     | \$2.18 to 2.25 |

**Chicago, by Telegraph.**—Business in Cut Nails shows no change, either in volume or as to prices. Jobbers quote small lots from stock at \$2.35.

**St. Louis, by Telegraph.**—There is no change to report in Cut Nails. The demand is only fair and prices are unchanged. Small lots from store, \$2.30 to \$2.35, base.

**Pittsburgh.**—Demand is dull and there is more or less cutting in prices of Cut Nails by the mills and also by jobbers. We quote, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

|                             |                |
|-----------------------------|----------------|
| Carload lots.....           | \$2.00         |
| Less than carload lots..... | \$2.05 to 2.10 |

**Barb Wire.**—The West has not fully succeeded in securing a sufficient quantity of Barb Wire to satisfy the demands of the trade. In the East the requirements in this line are only moderate. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

|   |        |
|---|--------|
| To jobbers in carload lots, Painted.....              | \$2.60 |
| To jobbers in carload lots, Galvanized.....           | 2.90   |
| To jobbers in less than carload lots, Painted.....    | 2.65   |
| To jobbers in less than carload lots, Galvanized....  | 2.95   |
| To retailers in carload lots, Painted.....            | 2.70   |
| To retailers in carload lots, Galvanized.....         | 3.00   |
| To retailers in less than carload lots, Painted.....  | 2.80   |
| To retailers in less than carload lots, Galvanized... | 3.10   |

**Chicago, by Telegraph.**—The urgent demand continues. Manufacturers had expected to be able by this time to make much better deliveries, but they are still behind on contracts. Jobbers are doing everything they can to satisfy their customers, but are still compelled to pro rate the Wire they receive among their trade. Carload lots are quoted at \$2.75 for Painted and \$3.05 for Galvanized. Less than carloads are quoted at \$2.85 and \$3.15 respectively, with a shading of 5 cents to the best trade.

**St. Louis, by Telegraph.**—Continued scarcity is still the feature in the Barb Wire market. It was hoped that by this time mills would have caught up with their orders and be able to ship promptly, but the situation is practically unchanged. Mills are doing what they can to keep the trade supplied, but the demand continues heavier than the supply. Jobbers quote carload lots of Painted at \$2.85 and Galvanized at \$3.15. Less than carload lots are quoted at \$2.95 for Painted and \$3.25 for Galvanized.

**Pittsburgh.**—In certain sections demand for Barb Wire continues heavy, but in others is only fair. Here and there some buyers have slight trouble in getting prompt deliveries. For domestic trade we quote: Galvanized Barb Wire, \$2.90, in carload lots to jobbers, and Painted, \$2.60. Terms 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh.

**Plain Wire.**—Plain Wire continues difficult to obtain in quantities to fully supply the demands of the trade. Manufacturers are still behind on their orders. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

|   | Base sizes. |        |
|---|-------------|--------|
|   | Plain.      | Galv.  |
| To jobbers in carload lots.....             | \$2.25      | \$2.65 |
| To jobbers in less than carload lots.....   | 2.30        | 2.70   |
| To retailers in carload lots.....           | 2.35        | 2.75   |
| To retailers in less than carload lots..... | 2.45        | 2.85   |

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances.

|              |                               |               |
|--------------|-------------------------------|---------------|
| 6 to 9.....  | Base.....                     | \$0.40 extra. |
| 10.....      | \$0.05 advance over base..... | .40 "         |
| 11.....      | .10 " " " ".....              | .40 "         |
| 12 and 12½.. | .15 " " " ".....              | .40 "         |
| 13.....      | .25 " " " ".....              | .40 "         |
| 14.....      | .35 " " " ".....              | .40 "         |
| 15.....      | .45 " " " ".....              | .75 "         |
| 16.....      | .55 " " " ".....              | .75 "         |
| 17.....      | .70 " " " ".....              | 1.00 "        |
| 18.....      | .85 " " " ".....              | 1.00 "        |

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.



**Chicago, by Telegraph.**—The mills are enjoying a sustained heavy demand for all gauges. Manufacturing consumers are extremely busy and are taking much more Wire than usual. The mills have not yet caught up with their orders, but are considerably behind in making deliveries. Carload lots are quoted at \$2.40, base, and small lots from stock at \$2.50, with \$2.45 quoted to the best trade.

**Pittsburgh.**—Mills report a heavy demand from jobbers and the latter report a good business from small buyers. The market is strong and for domestic trade we quote:

|   | Plain. |
|---|--------|
| To jobbers in carload lots.....             | \$2.25 |
| To jobbers in less than carload lots.....   | 2.30   |
| To retailers in carload lots.....           | 2.35   |
| To retailers in less than carload lots..... | 2.45   |

Galvanized Wire up to No. 14 is 40 cents advance on Plain; Nos. 15 and 16, 75 cents advance, and Nos. 17 and 18, \$1 advance. Terms are 60 days net, with 2 per cent. off for cash in 10 days, f.o.b. Pittsburgh.

**Augers and Bits.**—The market for Augers and Bits has for some time been characterized by an unusual degree of regularity, prices being, on the whole, well maintained. The outlook for the remainder of the year is regarded by the manufacturers as promising. The stock of goods on hand, both in the trade and with manufacturers, is said to be light. There has recently been some interruption in the production of goods on account of the lack of power in some of the factories which are run by water, and also on account of difficulty in obtaining steel. It is not, however, apprehended that there will be any serious difficulty in producing such goods as may be required.

**Axles.**—The Axle market is regarded as in an improved condition so far as prices are concerned, as there is a disposition on the part of the manufacturers to withdraw extreme quotations. During the last season very low prices ruled and manufacturers have not as yet entirely cleared up their order books. It is as yet rather early to ascertain what prices will rule for next season. The condition of the market in the raw material has necessitated some advances and the indications are that somewhat better prices will be obtained than were current during the first half of the year.

**Wrought Iron Pipe.**—The Wrought Iron Pipe market is very firm, with such a volume of business that the mills find difficulty in supplying the requirements of the trade. In view of the general condition and the apprehension of difficulty in obtaining raw material some manufacturers have withdrawn quotations. Jobbers who have Pipe on hand are able to obtain advanced prices on account of the existing scarcity.

**Carriage Bolts, Machine Bolts, &c.**—In this line manufacturers report a large volume of business and prices are well maintained. In some cases merchants and manufacturers report difficulty in obtaining goods as promptly as needed.

**Asbestos Paper, Wick and Rope Packing.**—Some reductions in price have been made in Asbestos products, which have been made possible by declines in the price of raw material, the reductions in the manufactured forms being about 1/2 cent per pound. The following prices are now offered: Sheet Board, 40 x 40 inches, and Roll Board over 1-16 inch, 3 1/2 cents per pound; Building Felt, 6, 10 or 14 pounds per square, and Roll Board, 1-16 inch and less, 2 1/2 cents per pound; Wick and Rope Packing, 15 to 18 cents per pound, according to quality.

**Glass.**—The combines have contemplated starting their Window Glass factories on September 15. It is now intimated that the time for beginning work is likely to depend somewhat upon the demand for Glass during August. If it does not improve the starting of factories may be deferred to give jobbers an opportunity to dispose of stocks on hand. Co-operative factories, it is stated, will start making Glass by the middle of September. It is estimated that there is an equivalent of 128 pots outside of both combines, the production from which would not materially affect the market. The

probabilities are that this class of Glass factories will increase in number, if present conditions continue, until they become a factor in the market. Jobbers' quotations for domestic Glass are as follows:

|                                     | Discount.   |
|-------------------------------------|-------------|
| Less than car lots, from store..... | 80 and 20 % |
| Carloads, f.o.b. factory.....       | 85 and 5 %  |

**Oils.—Linseed Oil.**—The market remains firm, but purchases are usually limited to immediate requirements. The new crop of flaxseed from the Southwest and West will possibly be on the market about the middle of the month. This, however, is likely to be but a small portion of the entire crop, and will supply the trade with Linseed Oil but for a limited time. The Northwestern crop of seed, it is stated, will not be in crushers' hands before the middle or last of November. It is estimated that the new crop of seed will be sufficient to supply domestic requirements. It is reported that plans are on foot to further consolidate Linseed Oil and White Lead interests. Quotations are as follows: City Raw, 82 cents per gallon in lots of five barrels or more; 83 cents in lots of less than five barrels. State and Western Raw Oil, 80 to 81 cents, according to quantity. Calcutta Raw Oil, 85 cents per gallon. Boiled Oil, 2 cents per gallon advance on Raw.

## MICHIGAN RETAIL HARDWARE DEALERS' ASSOCIATION.

THE programme for the sixth annual convention of the Michigan Retail Hardware Dealers' Association has just been issued, and an inspection of it shows that arrangements have been made for an exceptionally interesting and attractive meeting. The headquarters of the association will be at the Hotel Cadillac, Detroit, and the convention days are August 14 and 15.

The special feature of the gathering will be the trip to the "Flats" by the steamer "Tashmoo" on the second day. A start will be made at 8.15 a.m., arriving at the Mervue Club at noon, when dinner will be served. After dinner an executive session will be held, when the work of the convention will be completed. After supper the members will again board the "Tashmoo" for the return trip to Detroit. The day will thus be spent in a way that will, it is hoped, prove especially enjoyable to the association.

During the convention papers on the following topics will be read: "The Best Methods of Conducting a Retail Hardware Store," by R. R. Chandler, Coldwater, Mich.; "Credits and Collections," by R. J. Cleland of the Commercial Credit Company, Detroit and Grand Rapids; "Store and Window Dressing and the Best Method of Keeping Stock in Order," by Henry C. Weber, Detroit. An address will also be made on "The National Association and Its Possibilities" by a representative of the National Retail Hardware Dealers' Association.

It is hoped that this will be the best attended meeting in the history of the organization, and present indications, we are advised, bear out this expectation.

With a view to stirring up the active interest of the members of the association the memorandum slip printed herewith has been issued. It is a forcible and eloquent plea and should have a gratifying response:

To Members:

As a paid up member of the Michigan Retail Hardware Dealers' Association in good standing, it is your personal duty to attend this meeting and if possible to bring some neighboring Hardware dealer with you for initiation. The times demand a more perfect unification of interests. Organization is waxing greater every year. There never was a time when the possibilities for practical dollar bringing results were half so great as now. Do your part on this occasion and be a committee of one on membership. Last year many of the dealers did this. It is possible for all to do it in 1901. The Michigan Association will progress and grow no faster than the personal interest of its members.

Let us double our active membership at this meeting.

THE MICHIGAN RETAIL HARDWARE DEALERS' ASSOCIATION.

## Correspondence.

### PRICES TO FOREIGN BUYERS.

NEW YORK, July 29, 1901.

To the Editor: Noting your editorial in the issue of July 18, 1901, regarding the matter of "lower prices to foreign buyers" and the investigations of the Industrial Commission, perhaps a few words may justify this practice in the minds of those who can drop sentiment and consider the subject from a purely business standpoint.

It is only a few years ago when the cry of overproduction was heard on all sides, and many long articles were written showing that this great evil was the cause of ruinous competition and glutted markets. "Sentiment" at that time gave the overburdened manufacturer no relief, and the much abused consumer at home took great pleasure in bearing down the selling price of the producer until nothing remained of all his former profits, and left him to struggle on in semi-bankruptcy until some new wave of prosperity would reach him.

To avoid this state of affairs the manufacturer was obliged to seek a larger market, even if only to relieve himself of his surplus stock.

The relief promised by an export demand was very inviting, but foreigners do not buy our goods unless we meet the competition of their own factories with lower prices or better goods; and so our prices were made as low as we possibly could make them, and our goods so far better than theirs that they attracted and invited the attention of shrewd foreign buyers.

It soon became apparent to the manufacturer here that if he could run his factory to its full capacity all the year round his costs would be at a minimum, and if the home demand was not sufficient to consume it all he could well afford to sell his surplus in a foreign market at cost and then show a much larger profit on his investment than if he ran his plant at a reduced force.

Here are some of the figures, worked down to a scale: Let us assume a factory can produce at its most economical point 1000 articles per day, and that the cost to be \$1 per article and the selling price \$1.20 each, and the home demand is only 500 articles per day. The profit account would then show that they earn 20 cents each on 500 articles, or \$100, and a surplus stock on hand of 500 articles per day which he will dispose of abroad at cost.

Now if the plant is reduced in force so as to produce but 500 articles per day, he soon discovers an increased cost, which varies in different goods from 5 per cent. to as much as 20 per cent. Let us assume that the cost is increased but 5 per cent. and the profit account will show as follows: Five hundred articles cost \$1.05 each, sell at \$1.20 each; profit, 15 cents each equals \$75 per day, or 25 per cent. less than when running at its full capacity. If the cost is increased 10 per cent. the profit would be reduced \$50, or 50 per cent. less than when running full.

Now these figures are only presumptive; but let the manufacturer give you his correct data, and the reasons why the export trade is desirable, even if without direct profit, will be very plainly seen.

The home consumer pays no more than he would under other circumstances, while the factory is kept busy and every one connected with it, in the way of supplies, transportation, &c., are all benefited.

Wherein lies the discrimination against the home trade; or shall the factory sell the home trade also at cost?

H. H. SOMMER.

### WESTERN CLASSIFICATION CHANGES.

A NUMBER of changes in the Western classification, which applies broadly to the territory west of the Mississippi River and east of the Rocky Mountains, go into effect August 1. The following are some of the most important relating to Hardware and metal products. It will be observed that the first two columns give the new classification, No. 32, on carload and less

than carload lots, as compared with the old classification, No. 31, which is indicated in the last two columns:

|   | Classification. |             |             |             |
|---|-----------------|-------------|-------------|-------------|
|   | L.C.L.          | C.L.        | L.C.L.      | C.L.        |
|   | No. 32-new.     | No. 31-old. | No. 32-new. | No. 31-old. |
| Corn Planters, K. D.                                  | 2               | ..          | ..          | ..          |
| Cotton Planters, in bundles, K. D.                    | 2               | ..          | 1           | ..          |
| Cultivators, with arch bars attached.                 | 2               | ..          | ..          | ..          |
| Rake Teeth.   | A               | ..          | 4           | ..          |
| Plow Points, Bottoms, Shares, &c., not boxed.         | 5               | ..          | ..          | ..          |
| Springs for agricultural implements.                  | 3               | A           | 3           | ..          |
| School Drawing Boards, without legs, boxed.           | 3               | 4           | 2           | 4           |
| Tubular (Shoe) Rivets, in box, bbls or kegs.          | 1               | 5           | 2           | 5           |
| Brass Chain, in boxes or casks.                       | 1               | ..          | 2           | ..          |
| Brass Fire Sets, Shovels, Tongs, Pcker, &c.           | 1               | ..          | 2           | ..          |
| Brass Vessels, in boxes or barrels.                   | 1               | ..          | 2           | ..          |
| Britannia Metal, Sheets or Rolls, box, bbls, casks    | 1               | ..          | 3           | ..          |
| Bronze Castings, unfinished, 100 pounds or over       | 3               | 4           | 4           | 5           |
| Bottle Carriers.                                      | 2               | 3           | 2           | ..          |
| Tin Cans, jacketed or crated.                         | 1               | ..          | ..          | ..          |
| Coffee and Hot Water Urns, boxed.                     | D1              | ..          | 1½          | ..          |
| Copper Bond Wire, in boxes or barrels.                | 2               | ..          | ..          | ..          |
| Copper Vessels, in boxes and barrels.                 | 1               | ..          | 2           | ..          |
| Umbrella Stands, in packages.                         | 1½              | ..          | ..          | ..          |
| Cuspidors, cast iron, boxes, hdds, casks.             | 3               | ..          | 4           | ..          |
| Cuspidors, copper, boxed.                             | 1               | ..          | 2           | ..          |
| Arc Light Windlasses, in barrels.                     | 2               | ..          | 3           | ..          |
| Dry Batteries.  | 2               | ..          | ..          | ..          |
| Carbon Cups or Cylinders, boxed.                      | 2               | ..          | ..          | ..          |
| Emery Cloth, boxed.                                   | 1               | ..          | 2           | ..          |
| Combination Wire and Wood Fence.                      | 4               | ..          | 3           | ..          |
| Fire Escapes, N. O. S.                                | 3               | ..          | 1           | ..          |
| Mirror Towel Racks, crated or boxed.                  | 1½              | ..          | ..          | ..          |
| Iron Hames, iron, tinned or japanned.                 | 3               | ..          | 4           | ..          |
| Horse Collars, box, barrels, or sacks.                | 1               | ..          | 2           | ..          |
| Stirrups, metal, box or crated.                       | 2               | ..          | 3           | ..          |
| Hose, rubber and cotton or canvas lined, boxed        | 1               | A           | ..          | ..          |
| Bed Plates for paper mills, roller bars, boxed        | 4               | 5           | ..          | ..          |
| Boiler Tubes.   | ..              | 5           | ..          | ..          |
| Butts, plain, iron or steel, in packages.             | 3               | ..          | 4           | ..          |
| Carriage Blocks, boxed or crated.                     | 3               | ..          | ..          | ..          |
| Shutters and Doors, steel rolling, boxed.             | 4               | 5           | ..          | ..          |
| Steel Waste and Steel Shavings.                       | 1               | ..          | ..          | ..          |
| Gratings (cast iron), for wall ventilators.           | 3               | ..          | 4           | ..          |
| Knives and Forks, tinned, iron.                       | 2               | ..          | 3           | ..          |
| Wire Lath.  | 3               | 5           | 4           | 5           |
| Lead Washers, boxed.                                  | 3               | ..          | 4           | ..          |
| Leather Belt Tongues, boxed.                          | 1               | ..          | ..          | ..          |
| Blowers for portable forges, crated.                  | 2               | ..          | ..          | ..          |
| Machine Knives, finished, boxed.                      | 2               | ..          | ..          | ..          |
| Mangles, hand, boxed.                                 | 1               | ..          | 2           | ..          |
| Rubber Valve Cups, box or bundles.                    | 1               | ..          | 2           | ..          |
| Hungarian Nails, Shoe Nails, box, barrel or keg       | 3               | 4           | 2           | ..          |
| Iron Tacks, box, barrel or keg.                       | 3               | 4           | 2           | 3           |
| Nickel Scrap.   | 1               | ..          | 3           | ..          |
| Purses and Toilet Articles, trimmed with silver, &c.  | 1½              | ..          | ..          | ..          |
| Wash Stands, cast iron, nested.                       | 3               | 5           | ..          | ..          |
| Chain, Wood, Pumps, Boxes and Tubing.                 | ..              | A           | ..          | ..          |
| Stone Lined Blotter Baths.                            | 2               | ..          | 3           | ..          |
| Wooden Lawn Swings, S. U. (not folded).               | D1              | 3           | ..          | ..          |
| Wooden Lawn Swings, K. D. (folded).                   | 2               | ..          | ..          | ..          |
| Air-Tight Heaters, sheet iron, crated.                | 3               | 5           | 1           | 5           |
| Flour Bins and Sifters, combined, in boxes and crates | 1½              | ..          | ..          | ..          |
| Post Mauls, in boxes or barrels.                      | 4               | ..          | 3           | ..          |
| Timber Dollies, hand.                                 | 2               | ..          | 1           | ..          |
| One and two horse Freight Wagons, N. O. S.            | 3½              | ..          | ..          | ..          |
| S. U.   | 3½              | ..          | ..          | ..          |
| One and two horse Freight Wagons, boxed or crated     | L1              | ..          | ..          | ..          |
| Buggies, with fixed or standing tops, crated.         | D1              | ..          | ..          | ..          |
| Rods for Wagon Gates, bundles, box or barrels         | 4               | 5           | 3           | 5           |
| Wagon Bows, minimum weight 20,000 pounds              | 1               | 4           | ..          | ..          |
| Brass Wire Cloth and Netting.                         | 1               | ..          | 2           | ..          |
| Wire and wood material for Corn Crib.                 | 4               | ..          | 3           | ..          |

#### AMENDMENTS TO RULES IN WESTERN CLASSIFICATION.

Attention is called to amendments which have been made to the Western Classification Rules, which can best be understood by procuring a copy of Classification No. 32, and comparing with No. 31, referring to rules 4, 8, 14 and 17.

Rule No. 4 pertains to immunities of carriers and provisions for limited valuation.

Rule No. 8 applies to shipments in excess of one or more full carloads.

Rule No. 14 governs ratings on different kinds of packages, such as crates, sacks, bales, boxes, &c.

Rule No. 17 refers to minimum charge for articles loaded on open cars, too large to be loaded through side doors or box or stock cars.

The Western Classification governs all shipments west of the Mississippi River, also south, north and northwest.

Members are advised to procure copies of the Western Classification for reference to items affected in their respective lines of business.

THE organization of the Turner, Day & Woolworth Handle Company, Louisville, Ky., embracing the American Handle Company, the Hartzell Handle Company, the Turner, Day & Woolworth Mfg. Company and other manufacturers of Handles, is announced. It is stated that the company have increased their facilities and retained the experienced men formerly employed, thus enabling them to maintain the high grade of Handles and first-class workmanship that have gained for the above companies an excellent reputation. The new company in soliciting business refer to their prices as on a reasonable basis. Their New York office is at 100 Chambers street, in charge of Wm. R. McCullough.



# Notes on Foreign Trade

## BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, {  
NORFOLK STREET, LONDON, W. C. }

### Lawn Mowers—a Chance for America.

SOME time ago the Lawn Mower manufacturers of this country came to an agreement with the Ironmongers' Federated Association with reference to the price and discount of all their listed machines. So long as the listed machines were the only machines on the market everything would have been easy, but a large number of wholesale houses and co-operative establishments, desiring their own special pattern, have made offers to Lawn Mower manufacturers to make these special patterns, they in their turn offering to buy in such large quantities as would justify the business. An attempt is now being made by the Ironmongers' Associations to prevent this. It is pointed out pertinently that if British Lawn Mower makers yield to the behests of the retail ironmonger and decline to take large orders for machines of a special pattern, the orders will simply be transferred to America. I have no doubt American makers would be glad to make special patterns if the quantities ordered are large enough. The little discussion to which I have referred points to new possibilities in the Lawn Mower trade. Is it not possible to get into touch with large buyers of Lawn Mowers making special patterns with a special designation and at a special price for a specially large quantity?

### Trade in South Africa.

It would appear that those portions of South Africa not directly affected by the operations of war are pulling themselves together and are now purchasing heavily. The declared value of the imports of merchandise on private account for the month of May last is said to be \$6,450,000, as compared with \$6,100,000 for May last year. Although it is stated that these goods are for private account, it must be remembered that this includes contractors to the army, so that although the goods are consigned to the contractors, they are really for the use of the Government. In a communication to the *Ironmonger* from Bulawayo we are informed that dealers in Ironmongery there find great difficulty in getting goods through from the ports, owing, in the first place, to the scarcity of rolling stock, and in the next place because of a great deal of danger to trains in certain parts of Cape Colony and Bechuanaland from roving bands of Boers. The lines of Hardware which find the readiest sale are such things as trade Brass and Copper Wire, Bright Iron Jack Chains, Kaffir Picks, Cheap Hatchets, Pocket Cutlery and kindred goods.

In connection with South African trade a letter was recently read to the Birmingham Chamber of Commerce pointing out that in South Africa business firms receive catalogues and circulars from Germany regularly, and that the result has been the diversion of much trade from England to Germany. The writer states further that the Chambers of Commerce in Africa are composed of all nationalities, each person naturally favoring his own particular nation, so that, notwithstanding the strong feeling evinced for the mother country among Englishmen, it is impossible for the Chambers of Commerce in general to favor one nation at the expense of another. The point about catalogues is, I am convinced, an important one.

### American Ivory Purchases.

It is now stated by those interested in the Sheffield trade that the largely increased purchases of ivory by Americans, to which I have already alluded, are for the purpose of piano keys. I have no doubt that much of it may be accounted for in that way, but it does not meet the point of my criticism, which was that increased purchases of ivory by Americans are probably in part on account of the Improving Cutlery Industry of America. In this connection, however, I am led to wonder if American Cutlery manufacturers are quite alive to their

opportunities. For example, at the forthcoming London sales there are no less than 5 tons of waste to be offered.

It is stated that the teeth are bought in London, carried to America and cut up, and the waste is brought back and sold in London, a large part of which goes to Sheffield for use in the Cutlery trade. Is it necessary for this waste ivory to come back across the Atlantic?

### Prospects in India.

Reports from India just now are of the utmost importance, because it is the monsoon period. On the whole, it may be said that the fall of rain in all the various districts has been very satisfactory. This means a fairly quick recovery after the terrible effects of the Indian famine, and will go far to prevent a second famine, which, up to a month or two ago, was seriously feared by the Indian authorities. The money market is easy, lenders being more numerous than borrowers, and banks refuse to quote for short deposits.

### Improved Shipping Facilities.

Doubtless your readers are aware that the steamer "Northwestern," recently built at Chicago to run through the Canadian canals by way of the St. Lawrence to European ports, is due to arrive in Manchester from Chicago about the end of this month. In addition to this new shipping connection between Manchester and Chicago, shippers will note that in connection with the new steamship service between Manchester and Philadelphia the first steamer will sail from Philadelphia to Manchester on the 30th inst. The "Planet Neptune," which is to open the service, is a new and fast steamer of 7000 tons dead weight cargo capacity, built expressly for the Philadelphia-Manchester line and owned by the Leyland Shipping Company, Limited, of Liverpool. The second steamer is to be the well-known Manchester liner "Manchester Corporation," of 7560 tons dead weight, owned by the Manchester Liners, Limited. She is to sail from Philadelphia on August 15, and these two powerful steamers, with such others as the volume of the trade may demand, will maintain a regular direct service between Philadelphia and the Ship Canal. Another indication of the progress of the American trade with Manchester is furnished by the arrival in Manchester this week of the Lamport & Holt liner "Canning," from New York. The "Canning" is the largest steamer which has ever come up the canal from New York. She is 425 feet long, 52 feet broad and 28½ feet deep, with a tonnage of 3450 net and 5366 gross register, and a cargo capacity of nearly 8000 tons dead weight.

### How Not to Do It.

May I venture to suggest to American manufacturers that when an English agent asks for American agencies it is to be presumed he means business. An English firm has recently been advertising in *The Iron Age* with a view of arranging suitable agencies in this country. The principals are in earnest about it, and as soon as they have received a number of likely communications, one of them is prepared to cross the Atlantic and fix up business by personal intercourse. The firm in question have received, in consequence of their advertisement, a number of circulars, trade lists and catalogues, but the difficulty is to receive letters from suitable firms making responsible proposals. There is little use in sending trade lists and catalogues without writing letters making more or less provisional offers. It is, of course, satisfactory to observe how carefully the advertising pages of *The Iron Age* are scanned, and doubtless this trade literature is sent as part of office routine. Surely in a case of this sort the clerk responsible should direct the attention of his principals to the nature of the advertisement. This complaint is not the first I have heard of the same character, and the difficulty can easily be remedied by giving instructions that applications for agency should be considered as something decidedly different from the ordinary run of advertisements.

### American Electric Goods.

I have been trying for some time past to ascertain what is the proportion of American electrical appa-

ratus sent to this country to the whole of British imports in that line of goods. There is a general impression abroad that the Germans are winning all along the line. I see, however, no reason why there should not be a marked increase in the sale of American Electrical Apparatus, if only the trade is tackled in a businesslike spirit. Some time ago I drew attention to a circular from an American exporter of these articles, which was distributed broadcast among agents, merchants and retailers indiscriminately. This is the way to spoil a trade. I cannot help thinking that this particular trade has not yet been put upon sound business lines.

#### Some Callers.

Among recent callers at *The Iron Age* office have been (a) the buyer of a large Danish house, inquiring for Pneumatic Tools. I gave him the necessary information. (b) A commercial globe trotter, who has been all over the world several times, and who is prepared to travel anywhere, if suitable terms can be fixed up. He speaks six or seven languages with fluency and carries excellent credentials. He spent some time in Washington and Philadelphia, and likes the American way of doing business. (c) A well established business man in the Hardware trade, who wants American agencies. (d) A young salesman, who has been some time representing an American Steel house, but whose services are not now required in consequence of the American Steel combine. He wanted to start in as an American agent, but upon my pointing out to him that to do the American agency properly required capital and influence, he finally agreed to see some American agents already established, with a view to transferring his trade connection to them. (e) An American statistician wanting to go through the files of *The Iron Age* for certain particulars, and asking for introductions to recognized experts on this side the water.

#### Nickel Supplants Steel

The War Office have been giving out heavy contracts for Nickel Forks, instead of for the old fashioned Steel Fork, which has hitherto been in use by the army. This change will prove a serious matter to the makers of Steel Forks, who have for years depended upon the War Office for contracts. It will also deprive Sheffield of her old monopoly in supplying soldiers' Cutlery. Nickel Forks are largely made in Birmingham, but I see no reason why American makers should not now tender for this class of goods.

### ARGENTINE AND RIVER PLATE TRADE.

FROM A SPECIAL CORRESPONDENT.

BUENOS AYRES, June 20, 1901.

**E**XPORTS of United States manufactures to the Argentine and to the River Plate are developing largely. Statistics of imports show astonishing figures compared with those of only three or four years back, yet the volume of general Hardware and Hardware Specialties is very little indeed, although it is evident that the superiority of these goods has made for them large and ever returning customers in those countries. German and English manufactures lead in these markets, but if properly worked by Americans these lines would stand competition and would find customers anywhere. The importation of Agricultural Machinery from Europe to this market has passed. American implement manufacturers have been working these countries the last five years with American energy and with the result of outdoing the others entirely. Electrical machinery, with its side lines, is to be found well represented, and its reputation is such that in a short time these goods will enjoy a practical monopoly in this market. These American manufacturers have fought their competitors successfully, not fearing expense and hard work, and the reputation they are enjoying guarantees other manufacturers success with less work and expense.

#### American Goods on Top.

American goods have conquered the favoritism of the public. Every workman, artisan, &c., feels the superi-

ority of the American made Tool, although in many instances he does not know the country of origin. There are times when the manufacturer of small Hardware and Specialties, the wholesale jobber or the supplier of Hardware stores should take advantage of the general public feeling toward their goods. Undoubtedly it means work and expense; it is a new market and requires study, but the market is large and rich enough to warrant working and it promises to become a good investment.

#### Divide the Expense.

If one manufacturer thinks the expense too heavy let him join with somebody else with goods similar to his; have him send a competent man to place his goods before the Hardware dealer. Orders at first will not be large, but as the dealer is enlightened enough to see the superiority of workmanship and smartness of construction and invention something will always result in a trial.

Waiting for orders through the export commission house in the port is lost time. These interests as a rule cannot take the trouble on the profits they obtain to try to introduce new goods, with the exception of staples.

Boot makers', Saddlers', &c., supplies are practically all of European make, and a large field will be found if approached and worked properly.

The republics of the River Plate are financially in a bad condition. Failures are daily and more frequent than even in 1890, the famous year of Argentine history. These conditions naturally will last some time, but will improve the money market, sweeping away the weaker concerns and leaving reliable and money carrying customers to do business with.

#### An American Bank.

Besides, if the manufacturers can induce an American bank to establish a branch with a system of credit as all European competing nations have successfully established, there is a good probability of paying competition in the River Plate.

When we see such a large number of Birmingham and Sheffield (English) or Remscheid and Solingen (German) representatives against none of the large United States manufacturing centers, it is astonishing to see the strides American commerce has made without working its opportunities properly.

### ENGLISH VS. AMERICAN AGRICULTURAL IMPLEMENTS.

**A**KENTISH farmer has been speaking his mind with regard to the relative value of English and American Agricultural Machinery. He says it has become a matter of necessity, if he is to make agriculture pay, that he follow the example of his neighbors and discard the antiquated and expensive English implements. A few months' practice has convinced him that Mowers and Plows of American make, while costing less, do far more and much better work in a given time than English ones. He tells that the American principle of combined machines, such as Horse Hoes with Earthers, enables the work to be done with one horse instead of two, and he also praises the light hand Tools of American make, which effect an enormous saving in hand labor. Yet, he laments, English makers will not see that by their obstinacy they are simply paving the way for their foreign rivals to enter. The day for decrying everything not English made has gone by, and the people will have what their experience and common sense advise.

J. J. TEEPLE has severed his connection with the Peck, Stow & Wilcox Company and is now in the employ of Fayette R. Plumb, Incorporated, in whose interest he will travel in the East and Middle West, visiting the large trade, among whom he has a wide acquaintance and popularity based upon business relations running through many years. His many friends will be gratified to know of his new connection and to



see him as the representative of a house who are so favorably regarded by the trade.

### GEO. BROWN'S NET PRICE LIST.

**G**EO. BROWN, Knoxville, Tenn., has issued his catalogue No. 13, in which he quotes net prices on a large variety of Hardware and related goods. The point is emphasized that the catalogue is for merchants only and is not sent to consumers. The special feature of interest in connection with the house is the fact that several years ago, as we announced at the time, they abandoned the employment of traveling salesmen for the marketing of their goods, thus saving expense, which, they claim, enables them to furnish goods at low prices to the trade. The volume, which contains nearly 200 pages, is prefaced by the following announcement:

We commenced business in January, 1869, occupying one room, 25 x 80 feet, and a part of the basement under it. Our business has enjoyed an almost uninterrupted prosperity, and at present we occupy for our salesrooms a new building, 75 feet front by 135 feet in depth, five stories above ground, with a large, deep basement, situated in the heart of the business district. We are told by those in position to know that we have, without exception, not only the largest, but in every way the most convenient Hardware house in the South. It is, with one exception, the largest building in this city occupied exclusively by one mercantile house. In connection with this we also occupy two large warehouses, having altogether a total of 30 rooms, 25 x 125 feet, and giving us a floor space of nearly 100,000 square feet, or about 2½ acres. These are by far the largest quarters occupied by any mercantile house in this city. And large as they are, they are crowded with salable goods. We carry the largest, best selected and the most complete Hardware stock in this city. We buy in the very largest quantities, pay spot cash and obtain all discounts.

Up to December, 1896, we employed a large force of traveling salesmen, sold goods on time and gave the usual discounts for cash. Our experience justifies the statement that it is the most expensive and unsatisfactory method of doing business that could be devised. Traveling salesmen of merit command and obtain large salaries, larger, perhaps, than for the same amount of work in any other business or profession, and when goods are sold on time large sums of money must be provided for carrying the bad debts so created, upon which interest must be calculated, allowances made for losses from bad debts, and expenses for collection. It is self evident that these salaries, expenses and losses must be added to the selling price of the goods, and the buyer must pay them.

The traveling and time system is one which compels the seller to make every effort to obtain the very highest price for his goods, and is the cause of the formation of associations of jobbers, such as the National Hardware Association, the Southern Hardware Association, and various associations in other lines of business, each having for its object the "protection of the jobber," in other words, the obtaining of higher prices.

Because of these things we determined to make a change, one that would enable us to reach our customers at a less expense and to make lower prices, and with this object in view, in January, 1897, we issued our first catalogue, naming our net prices for spot cash only. Our friends and competitors alike warned us that we might expect failure, saying this method had been tried time and again and it was impossible to succeed with it. We are glad to say that their predictions have not been fulfilled. On the contrary, our business has grown steadily and we are now doing the largest business within our history. We are not only selling more goods, but we sell with greater satisfaction to ourselves and to our customers, and with so little friction as scarcely to merit mention, and the number of our customers is steadily increasing. Our new method is one which not only enables us to sell at the very lowest prices, but to give the buyer an exact description of each article he buys and the price, so he does not have to depend upon his recollection of vague statements made him by the seller as to the quality and price, and misunderstandings are therefore impossible. Our method enables us to make such low prices that we no longer have to meet competition, we make it. We

are leaders of low prices and fix a standard of prices for others to attain, if they can.

In a circular relating to the catalogue a further reference to their method of doing business is made as follows:

We take pleasure in handing you herewith a copy of our catalogue No. 13. If careful descriptions and low prices on reliable goods give it any value, it is worthy of your most serious consideration. Having the largest Hardware business in this city, buying our goods in the largest way and for spot cash, and using these two levers to obtain from the manufacturers their most favorable figures, and from the railroads the lowest freights; marketing our goods in the most economical way, without traveling salesmen and the expenses incident to them; having no other terms but spot cash, and so avoiding losses from bad debts, we are able to attain to a plane of low prices not possible to our competitors, burdened with traveling men and with heavy losses from bad debts. The economies which we have made in conducting our business are reflected in our prices, which have been made as low as is possible in every instance. Our policy being to make our prices low, and to look to an increasing volume of business and a lessening of expenses for our compensation, we are not troubled by the discussion now active in trade circles as to whether the jobber, like the stage coach and the horse street car, must soon disappear from the face of the earth. We do not find it necessary to associate with other jobbers and unite in prayer to the manufacturers to allow us to exist, nor to attend committee meetings for the purpose of maintaining or advancing prices.

When visiting this city we extend to you a most cordial invitation to call upon us, to look over our salesrooms and warehouses, 30 floors in all, covering more than two acres, packed from cellar to roof with salable Hardware, and to judge if our statements are made in boast or in moderation.

### GURNEY REFRIGERATOR COMPANY.

**T**HE GURNEY REFRIGERATOR COMPANY, Fond du Lac, Wis., manufacturers of the Gurney line of Refrigerators, are rebuilding their factory, which was destroyed by fire last April. They are erecting a very substantial brick building, which will be modern in every respect. Fire walls will divide the building into sections, making it almost impossible for fire to spread from one section to another. The company have purchased a very fine equipment of machinery, which is now on the ground ready to be installed. The contract with the builders calls for the building to be completed by August 15. The company therefore expect to begin manufacturing operations very shortly and will then place on the market a new and improved line of Refrigerators. The factory will be of such capacity that the company are confident that they will be able to fill orders without delay in the busiest of seasons.

### STANDARD TOOL COMPANY'S NEW CATALOGUE.

**T**HE STANDARD TOOL COMPANY, Cleveland, Ohio, and 94 Reade street, New York, have just issued a fine new book of their manufactures, containing 223 pages. In it are illustrated and described the numerous and complete lines of Twist Drills, Reamers, Chucks, Spring Cutters, Taps, Flat Spring and Riveted Keys, and Milling Cutters, together with a number of special tools. In the back are 20 pages of tables of useful information, and a cable code arranged with special reference to the ordering of their goods. This company are represented abroad in the following cities: London, Paris, Berlin, Ronsdorf, Leipzig, St. Petersburg, Yokohama and Shanghai. They have an exhibit at the Pan-American Exposition, located in Section 47, Machinery Hall.

C. R. Guinn has lately entered the business field in Violet, O. T. Mr. Guinn is carrying a stock consisting of Shelf and Heavy Hardware, Stoves, Tinware and Agricultural Implements.

## What to Do in August.

BY H. C. W.

**D**O what the writer of this is doing and some time in July or August, if possible at all, gather strength for another 12 months. Get out in the woods, by the lakes or the rivers, or up in the mountains, where pine woods, pure water and good air bring thoughts of anything for the time being but your business. As a matter of expense it need not be an impossibility with any one. A camp or an outing of a few days, even in sight of home, is much better than not getting away at all. I have made this thing of a rest for the Hardwareman, no matter how short it may be,

### A Hobby Worth Riding.

There is no business on earth with so much of physical and mental work and detail attached to it. An experience of many years has more than clearly demonstrated that rest becomes necessary, and the belief follows that the few days or weeks given to it will add years to a busy man's life. Even machinery wears out without rest and repair. The finest mechanism in the world requires renewal, and the more asked of it, the more certain the renewal. What then can we expect of our own intensely busy men with all our work, worry and detail and no compensation?

### August for Cleaning Up

is one of the best months of the year. No business can properly go for the entire 12 months without a general going over, a rearranging, a clearing out and cleaning up. Warm weather is infinitely better for this than is cold. Extreme cold weather is not conducive to the finishing of a job of this kind, no matter how much in earnest it may have been begun. For some reason many of us have allowed August to become with us the dull month. The harvest is over, the intense activity of May, June and July is done with, and, whether or no, it becomes a sort of stopping place and the question comes, What next? So long as we are content to look at it so a part of the month can well be put in as suggested.

### August for Bargain Sales

is a capital month, and these sales should have their full measure of attention. There are Refrigerators and Ice Boxes unsold and the season getting late, Ice Cream Freezers, Hammocks and Lawn Swings representing balances of season stock; Lap Dusters, Fly Nets and Sheets to close, and Water Coolers and Filters unsold. It is possible in nearly every class of season goods, through special effort and special prices, to close out entire balances of stocks during the month of August, giving us the use of the money for another year, instead of tying it up in the surplus for the same length of time.

### Advertising in August

should be kept up as in no other month perhaps, if for no other reason than that it is allowed so often to drop in the "dead month." It is the quiet season that demands the very best work of the advertising man, for the making of business when it does not exist, for the benefit of buyers who will let buying go until another year unless some inducement is offered to close out stocks.

There is a prejudice existing among Hardware merchants as to the making of "bargain sales," and yet they are a paying part of every other class of mercantile business. They are without doubt as profitable in one line as in another, and in no sense do they belittle the merchant who offers them. We can much better afford to get cost out of hundreds of dollars' worth of season goods than to lose the chance of turning these same dollars a half dozen times, or using them for discount purposes, and the best of buyers cannot gauge himself in his purchases to the seasons.

### August is Good for Collections,

perhaps as good a month as any in the year, the time being as propitious, in that the farmer has his crops well in and either sold or ready to sell. Like all other classes of people, he will generally pay when he has the money

at hand. If we do not ask for it in August some one else will and will get it. No matter if Binder Twine notes and accounts, and those for Machinery are made payable in September, it is a good idea to send a statement in August as a reminder with a memorandum on bottom of same to the effect that it is only such and incidentally that your accounts become positively due at that time and that their kindly attention when due will be greatly appreciated.

### August for Fall Buying

gives one as much time for proper preparation as any other month, particularly for holiday buying and for those classes of goods that run through the middle months of the winter season. There is the Fodder Yarn and the Corn Knives, the Robes and Blankets, the Carving Sets and Table Cutlery, the Pocket Knives and Plated Ware, Chafing Dishes and the endless lines of fancy goods that bring a profit. Perhaps some of these goods are better bought earlier, or in July, but August will cover nearly everything in a general way. New cases want to be gotten ready for new lines of goods, and in many cases entirely new lines will be added and the month at hand is a capital one for doing all these things and more toward making a prosperous fall and winter season.

It is a good month for changes of any kind, for starting off well the latter half of the year. A good one to fill up in every possible way, for the one reason if for no other, that it is so often practically wasted, thrown away and counted as the unprofitable month of the year, which it is not, and is only so of our own making.

## REQUESTS FOR CATALOGUES, &c.

*The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.*

Peden & Co., Houston, Texas, are adding to their stock a full line of Steam Fitters' Tools, Supplies, Packing, Belting, &c., and will be pleased to receive catalogues and quotations from the manufacturers of such goods.

The Hardware stock of the Geo. W. Peck Company's store at Dansville, N. Y., was completely destroyed by fire on the morning of the 26th ult. They will immediately resume business in another building, and request the trade to send them catalogues and quotations on Hardware, Agricultural Implements and Plumbing, Heating and Sheet Metal Goods of all kinds.

## A LARGE STOCK OF SHEETS.

**J**OSEPH T. RYERSON & SON, 18 to 22 Milwaukee Avenue, Chicago, are enjoying the fruits of their business sagacity and enterprise. They are among the largest Steel merchants in the world, always carrying heavy stocks of Plates, Sheets, Tubes, Rivets and general Boiler Makers' Supplies. This year they anticipated labor troubles in the Sheet mills and greatly increased their purchases of Black and Galvanized Sheets. They have thus placed themselves in excellent position not only to serve their old customers, but also to promptly supply the pressing necessities of a wider circle of buyers in the Sheet trade, with whom business relations are extremely desirable. The stock sheet recently issued by this house presented a remarkable appearance for the times and conditions prevailing, showing heavy quantities of Sheets of the standard sizes and gauges on hand in their warehouses and thus ready for immediate shipment.

Mann Hardware Company, wholesale merchants, Greenwood, Miss., have increased their capital stock from \$30,000 to \$40,000, and are putting up a \$10,000 storehouse. Their line includes Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Sporting and Athletic Goods, &c.



## SHOW WINDOW DISPLAY.

*The trade are invited to contribute information in regard to methods which have proved satisfactory, with descriptions of attractive displays. Inquiries also are solicited, to which careful attention will be given.*

### HARDWARE STORE WINDOW DISPLAY.\*

BY W. C. M'LEAN.

#### PART FOUR.—SUGGESTED DISPLAYS

##### MOWERS.

Mowers may be displayed to advantage by taking two or three series of narrow steps made of empty Mower boxes and covering them with loosely draped cheese cloth. If the Mower is red, use yellow cloth; if green, use red; if white, use any dark color. A drop lattice of same color as draping should be placed straight across the bottom and hung from ceiling to within 5 feet of floor. Such a lattice should be very open in weave, probably 6 inches between each of the 1¼-inch strips. Place Mowers on steps and on the floor between the steps. Sharpeners, Rake Heads and Catchers should be hung on the side walls in tasty designs.

##### POULTRY NETTING.

To make a good display of Poultry Netting, arrange the floor of the window somewhat in the same style as in the exhibit of Mowers. Stretch a piece of Netting across the window against the glass. The walls should be draped in red in any fashion, as this color makes a good contrast with the Galvanized Netting. Arrange boxes and so dispose full rolls of Netting on them and on the floor as to get a pipe organ effect. A great deal can be made of a center card in this display, properly backing it with palms or placing it on a low easel. A space in the center of the display with sawdust strewn on the floor and containing a coop full of chickens would be an attractive way to finish off the trim. Such a sign as "Chicken Proof" would be most appropriate.

##### GASOLINE STOVES.

Exhibits for Gasoline and for Oil Stoves it pays to make quite elaborate. As a suggestion for such a display, make it as nearly as possible to give a throne effect. Have a raised dais covered tightly with marbled paper. Place a carpet down from the top to the center of the glass in front; construct an elaborate canopy of red and yellow paper supported by small pillars of Conductor Pipe. Place one Stove on dais and under canopy. Palms at sides are almost a necessity, to make this trim look at its best. Descriptive cards can be placed on side and rear walls, which are covered with wall paper resembling tapestry.

##### FISHING TACKLE.

To display Fishing Tackle have the tinner make a tank about 3 inches deep and long enough to reach from side to side in the window and close to the glass. It should be at least 18 inches wide. From the inner edge a bank ascending gradually in height toward the rear may be constructed, upon which to display Tackle. Paint the inside of your counterfeited brook green and fill it with water, having in it a number of gold fishes. The bank should be covered with some green stuff, possibly artificial moss, which is sold in strings. When the writer made this display he covered the side light with jointed poles suspended from the top sash at about 2-inch intervals. Price cards in the shape of fish could be used and attached to these poles, and the other articles on display. For a center card paint a quotation from Izaak Walton, embellishing it with a pretty little water scene.

##### FOURTH OF JULY.

The Fourth of July offers opportunities for making a very attractive display. Drape flags as curtains against the glass. Drape side and back walls with red, white and blue in any pretty fashion. Use steps meeting in front, and diverging to the rear corners, covering these also with red, white and blue. Some rolls of sheathing covered with red, and short pieces of twine

in their ends simulate splendidly gigantic crackers. Place these in the corners and in the steps. Arrange any staple goods or novelties that it is desired to show at the time unless a stock of fire works is kept, which can be well displayed in the surroundings as described.

##### HAMMOCKS

Hammocks give the fellow who longs for dry goods a chance to drape the window. Let him hang Hammocks on the side and rear walls. Stretch Hammocks from side to side, from corner to corner, from transom bar to rear, all indiscriminately, yet so as not to hide any one of them. They should be displayed on the floor against narrow boxes, and the dry goods "roll" given them so as to set off the beauty of color in fringe or valance. On a level with the eye of the passer by stretch parallel with the window front a Hammock holding the figure of a girl reclining with her back to the street. She could have her head and shoulders covered with a small parasol, if a lay figure is not available. A foot dropping beneath the Hammock would add to the naturalness and attractiveness of the exhibit. Price cards attached to each Hammock might take the shape of stars or crescents. A center card might call attention to the "Summer Girl's Dream."

##### REFRIGERATORS.

To make a good Refrigerator display cover the side and back walls of window with cotton batting. Make long stringers to represent icicles, and hang them from ceiling, transom bar and gas fixtures. Have the window represent an ice grotto as nearly as possible, constructing ice stalactites and stalagmites of wood, and covering them with batting. For the floor puff dark green paper to represent water, or put dark green paper under plate glass, if some large pieces are handy. If the latter are used hide the cracks by ridges of batting. A little to one side of the center arrange a good sized snow bank, and place a Refrigerator thereon. In the evening cast the light through blue paper, which will give it the effect of being cold. Odd bits of Mica ground fine in a Food Chopper and spread over the batting in this display will give a great glisten to the snow. Remember that batting is inflammable, and this trim ought not to be used except where electricity is available for lighting. Cards might be devised as transparencies with red letters, and showing from the sides of snow banks.

##### HARD COAL STOVES.

The window arranged as just described in the Refrigerator display is an excellent one for showing hard coal Stoves, by placing the Stove where the Refrigerator stood. Use transparent red celluloid in place of Mica in a Base Burner, and place a light inside. The Fire Pot should be removed to get a full illumination, and the Stove will glow as if there were a fire inside.

##### OIL CLOTH RUGS.

Oil cloth rugs can be attractively shown in a window with backgrounds and floor of white. Roll the rugs



Fig. 18.—Card in Window of Oil Cloth Rugs.

neatly with pattern on the outside. Arrange them somewhat similarly to that spoken of for Poultry Netting in pipe organ style. Some palms used in the display will add to the effect. Fig. 18 shows the card used when the writer made this exhibit. On the card were pasted small colored samples, of which most dealers are recipients.

\* Copyright, 1901, by David Williams Company.

## HARD COAL STOVES.

For showing hard coal Stoves have the side wall and background of puffed white paper. On a box a little to the rear of center, and just large enough to hold it, place a best Base Burner Stove. Draw a line parallel to the front glass on the ceiling and side walls, and have it distant from the glass about a foot in front of the box. On this line tack breadths of fiery red cheese cloth, beginning at a corner to tack. Tack a breadth, and then space the width of the cloth; continue this around the whole window, excepting the floor. Gather the breadths together tightly in parts at the Pipe Collar of the Stove. From the floor edges of the window run tightly plaited white cloth to the center of the box under the Stove.

This trim gives an effect as of great rays emanating from the Heater; and the effect is immensely heightened under artificial light.

Judging from the favorable comments thereon, this was one of the most effective trims ever put on.

## CUTLERY.

Cutlery can be shown to very good advantage in the same manner as previously described for Carpenters' Tools.

Each sample board should be filled with Knives of one price. As to cards, each board should carry a price card, and for a full card gather heads of all kinds from ads., papers, bills, &c., pasting them on indiscriminately. Put them on thickly, except in the center, which leave for some such phrase as this, "A Thousand Knives for a Thousand People." A drop lattice of dark green would fill the window up, and one with a serrated edge is very pretty. Baskets of flowers hung from the lattice add immensely to its finished appearance.

## SOFT COAL STOVES

For exhibiting soft coal Stoves have a low drop lattice of light green and white strips coming to within 4 feet of the floor and placed a little to the rear of center. On a platform 1 foot high and to the front of this lattice place a row of different sized Stack Burners. The side walls, back and floor of this exhibit should be of green and white plaited cloth. In the arrangements of accessories the tops of the Stoves should come in front of and above the lower edge of lattice work. A pretty way to put a card in is to make a round window in the lattice and hang the card therein. Use a number of explanatory cards in this display, and also use red celluloid and lights within if the Stoves have a mica section.

## TEA AND COFFEE POTS.

Tea and Coffee Pots may be nicely shown if from Hooks in the ceiling they are hung by Plumbers' Chain. Hang them close to ceiling near the glass and lower toward the back until the articles at the extreme rear are within 3 feet of the floor. Place a row of large Paint Cans on the floor next to the window, perhaps 18 inches between each two adjacent Pails. Back of this set a row of Cans two high in the middle of the window, each pile directly behind the 18-inch opening in the front row, and back of this a row, a third row, three Pails high, just under the last line of suspended Pots, and having its piles in alignment with the front row. The side walls and floor should be all one color, backgrounds plaited or puffed, and the Cans on floor loosely draped with cloth. Place your prettiest Pots on these Pails. If you desire to use price cards, ones made like oak leaves would be pretty.

## THANKSGIVING.

A very striking display for Thanksgiving is shown in Fig. 19. Make a lattice of maroon, inclosing a circle 4 or 5 feet in diameter, dropped to within 4 feet of floor. Cut letters out of white cardboard and string on fine wire within the circle this message, "Our Thanksgiving Greeting." As a central figure beneath the lattice place a big pasteboard turkey, perhaps 4 or 5 feet long. Back this with thin "bill stuff." Use some burnt sienna to give the fowl its proper color, and then stick it full of Carvers and Forks.

In front of this and on single tiers of paint cans

loosely draped place Carving Sets with price cards attached.

## CHRISTMAS

Make the holiday trims the most elaborate of the season. By enlarging on the following scheme a very attractive Christmas show can be made:

Take a series of steps with wide treads and narrow risers. At a little to the rear of the window's center erect a series of three arches, carrying out as nearly as possible a Moorish design in this trim, with the arches of horseshoe shape. Closely woven and fine lattice work of three or more colors should be used. Clusters of three pillars made of pipe covered with marbled oilcloth should hold the arches. Have the puffing on the arches of two colors and in blocks, the side and back walls of red tissue dashed with gold bronze. The steps should have red risers of plaited cloth and smooth yellow treads. Behind and showing through the first archway display Tool Chests; behind the center one Sleds, and behind the third a display rack of Sweepers. On the first step



Fig. 19.—Thanksgiving Display

display Cutlery; on the second Silver Ware, Razors, Brushes and Strops; on the third Skates; on the side wall Nicked Tea and Coffee Pots, and from the ceiling hang a few Brass Bird Cages. The palms displayed prettily in front of the pillars and in the corners will, if the details have been carried out fully, make a holiday show that is very striking and will sell lots of stuff.

## ANOTHER CHRISTMAS DISPLAY.

Carry out somewhat the same idea as in the last trim, except that the arches, lattice work and steps should be placed across the corner of the window, reaching from the front edge of the glass to the rear wall. Separate steps by balustrades of whitewashed  $\frac{7}{8}$ -inch wood strips. Use the first archway and steps, as set aside, for father's presents; the second for mother's and sister's, and the third for brother's. Tell this arrangement to the passer by by prominent cards.

## BIRD CAGES

For showing Bird Cages a good central figure is a leafless tree full of Cages. Drape window with green and attach price cards to each Cage. The tree might be placed on a dais and this latter used to display sundries.

## SKATES.

Skates may be exhibited on a floor of glass over green. Skates should be placed on edge, and in pairs, also in lines concentrating at the middle of the rear wall, where a throne of yellow might be erected. A doll holding a taper in her hand should be placed on a seat on the throne. Be careful not to get your pairs of Skates too close together in this trim.

## IN CONCLUSION.

A word in conclusion. Do not let the sidewalk display take up all the store front. Leave at least room so an observer can get up close to the glass. Be persistent in this and, as in all things, it will bring success.



## SARGENT & CO.'S NEW CATALOGUE.

**S**ARGENT & CO., New Haven, Conn., and New York, have just completed their new catalogue, which is certainly one of the best and most complete ever issued in the trade, and shows much skill in its compilation and a thorough knowledge of the requirements of merchants. It contains in compact form an immense line of goods, arranged for ready reference, and in such form that it is easy to get at any information desired. An examination of this catalogue, an advance copy of which we have received, shows that great care has been taken in its compilation, with results that will be appreciated by the trade. Facing the title page is a view of the many buildings comprising the extensive works of the company at New Haven, Conn. Following is the alphabetical index, in which any item desired may be quickly found, so complete is the indexing and cross indexing. Then comes the numerical index, while other pages in this part of the book contain descriptions of finishes, information regarding special work and a condensed list of Master Keyed Locks. The hand of Locks is pictured in a novel manner; four Locks are illustrated—Right Hand, Right Hand Reverse Bevel, Left Hand, Left Hand Reverse Bevel. On each Lock appears in miniature the door for which that Lock is suitable, so that by reference to this page it is easy to decide the vexed question as to when it is necessary to order a regular or a Reverse Bevel Lock.

Page 1 of the catalogue is devoted to illustrations showing the application and advantages of Sargent's Easy Spring. On the following pages may be found the full line of Artistic Hardware made by the company—Greeks, Colonials, Gothics and other schools in great variety. Half-tones in reduced size are used to illustrate the different articles; the type matter is well arranged and much information is given in small space. In these designs the prices for the Knobs, Escutcheons and other trimmings appear on one page, while on the facing page are the prices for Lock sets for inside doors, front doors, sliding doors and communicating doors, also sets for Three-Bolt Inside Door Locks. Next in order, and occupying the pages from 106 to 146, is the line of Lock sets made up with plain bronze metal trimmings; also the cheaper sets made of iron and steel. These pages, which contain the Lock sets that are likely to be carried in stock by dealers, will undoubtedly be among those most frequently referred to.

Beginning with page 147, considerable space is given to Locks, Knobs, Escutcheons and other trimmings. The matter on these pages is tabulated in compact form, and gives in detail full information regarding each item. A uniform arrangement is followed which makes reference to any particular point an easy matter. Reduced size cuts are used for the Locks and trimmings, as well as for much of the Builders' Hardware, which immediately follows. Here, as in all places where small cuts are used, full measurements are given for each article. It is also noticed that throughout the book prices are given for the various finishes in which the goods are made. A glance through the Builders' Hardware section of the catalogue shows many well arranged and attractive pages. Particular attention is called to the Store Door Handles shown on pages 647 to 672. Here, as on the pages of design goods, excellent half-tone illustrations are used which show to good advantage the different patterns of Handles. Many other pages are worthy of commendation.

Typographically the book is noteworthy. The type has been carefully selected and used to the best advantage. The paper combines with a good printing surface the strength that is needed in a trade reference book of this kind. The binding is attractive in appearance, and in addition is solid and substantial in construction. It is made sufficiently strong to withstand the constant usage to which the book will be put. The cover is of green cloth, stamped with a design of neat appearance, and containing in gold the name Sargent & Co. The leather back is in three panels, the upper and lower matching in color the cloth sides of the book. The center panel is recessed and highly polished; here again appears in gold the name of the company with the year of issue.

We are advised by the company that the catalogues are being included with shipments made to customers.

## TRADE ITEMS.

D. M. STEWARD has purchased the entire plant and effects of the D. M. Steward Mfg. Company, Chattanooga, Tenn., manufacturers of Lava Electric Insulators, Gas Tips, Slate Pencils, Crayons, &c., and will continue the business without change in name. This will involve no change in the management, as Mr. Steward was for 25 years president and manager as well as majority stockholder in the old corporation. A continuance and extension of the favors of the trade is solicited.

THE DANVILLE BESSEMER COMPANY inform us that their equipment is very nearly completed in their main Shovel factory; their handle room is ready for operation and will be turning out handles immediately. They expect to be fully in operation on or before the middle of August.

STATE LINE MFG. COMPANY, Chattanooga, Tenn., on account of their rapidly growing export trade and steadily increasing business in the Eastern States, have found it necessary to establish an Eastern and export office at 107 Chambers street and 91 Reade street, New York. A full stock of all their products will be carried and prompt shipments made.

THE GLOBE-WERNICKE COMPANY, Cincinnati, Ohio, announce, under date July 20, that their Eighth street plant was damaged by fire on the night previous, but to exactly what extent they were not at that time able to determine. The principal loss was in their warehouse building, their manufacturing equipment being but slightly damaged. Until their stock can be replenished they will, of course, not be in position to fill all orders as promptly as usual, but they will do their utmost to restore their stock of Filing Cabinets, &c., as quickly as possible. They request the trade to note that their Bookcase factory is located several miles from the one visited by fire, so that there will be no interruption whatever to their Bookcase business, which they are in better position than ever before to handle with dispatch.

THE NATIONAL FILTER COMPANY OF NEW YORK, 15 East Fourteenth street, New York, is the name of a new company recently formed to take over the business of the Gate City Filter Company. They are manufacturers of and dealers in all types of Water Filters for household and general use, including the Morrison Gravity and Pressure Filters. The company will also exclusively manufacture the Gate City Gravity and Pressure Water Filters, as well as representing directly for the Atlantic States and export trade the National Tripoline Company, from whose mines in Missouri the natural filtering stone is taken. The National Tripoline Company are manufacturers of all kinds of Tripoli products, including Filter Tubes, Cylinders, Blocks, Disks and shapes of all sizes and proportions, together with Tripoli in various colors and degrees of fineness.

At the picnic of the Chicago Retail Hardware Association, to which reference was made in our last issue, some merriment was occasioned by a conspicuous sign which some one had placed on the rough counter of the principal refreshment booth. This sign informed everybody that the fixtures had *not* been furnished by the John D. Warren Mfg. Company of that city. Mr. Warren, who was present at the outing, was blissfully ignorant for a long time of the notoriety thus accorded to his concern.

THE Northwestern retail Hardware dealers are deeply interested in the failure of the T. M. Roberts Supply House of Minneapolis, Minn., which occurred last week. It is stated that the liabilities amount to about \$800,000, while the assets consist of the stock of goods on hand, which is estimated to be worth from \$200,000 to \$300,000. A portion of the liabilities, amounting to \$350,000, is secured, which will leave nothing for the unsecured creditors. The house were thrown into bankruptcy by Chicago creditors, on whose application Charles M. Way and Frank W. Shaw have been appointed receivers. The

statement is made that the house have about 1000 creditors, but it is believed that the number may run more than that. This house have for many years conducted what is called a catalogue business. They cultivated a trade with farmers and other retail consumers throughout the Northwest and seriously interfered with the business of the local retail Hardware dealers.

The plant of Job T. Pugh, Philadelphia, Pa., manufacturers of the Black Twist Augur Bits, which was recently visited by a disastrous fire, has been rebuilt and all departments are now running regularly.

The H. B. IVES COMPANY of New Haven, Conn., have purchased the letters patent, business and good will of the Champion Safety Lock & Novelty Company of Cleveland, Ohio, so far as they pertain and relate to the Royal Sash Locks, formerly manufactured by them.

### AMONG THE HARDWARE TRADE.

Evan Olson has disposed of his business in Amboy, Minn., to Amboy Hardware Company, who will continue at the old stand.

William K. Toole has lately embarked in business at 178 and 180 Main street, Pawtucket, R. I. He is handling a line comprising Shelf and Heavy Hardware, Tinware, Agricultural Implements, Sporting Goods, &c.

Holland Lumber & Hardware Company, with stores at Gebo and Joliet, Mont., were damaged by fire at the former place a short time since. The loss was \$13,800, on which an insurance of \$12,650 was collected. The company are wholesale and retail dealers in Hardware, Shelf and Heavy; Stoves and Tinware, Farm Implements, Sporting Goods, &c.

Chas. A. Fowler has purchased the retail Hardware, Stove and Tinware business of L. F. Holloway, De Witt, Neb.

E. D. Rhoades has succeeded Rhoades & Overton in the Hardware, Stove and Sporting Goods business in Rensselaer, Ind.

Geo. Brandvold has disposed of his Hardware and Stove business in Rembrandt, Iowa, to Brandvold & Wellmerling, who continue at the old stand.

Nelson & Bouquet Hardware Company, Owatonna, Minn., have succeeded the J. M. Thompson Hardware Company, Minneapolis, Minn. The latter concern recently embarked in the wholesale business, but owing to the illness of Mr. Thompson, who is well known to the Northwestern trade, having represented the Simmons Hardware Company for a period of 20 years in that territory, the business was disposed of to the Nelson & Bouquet Hardware Company, who will continue it in the same quarters, which, however, will be enlarged. The latter company have incorporated, with a capital stock of \$200,000 and the following officers: S. R. Nelson, president; E. Bouquet, vice-president and secretary; J. M. Thompson, second vice-president; Geo. R. Kinyon, treasurer. The firm have been extensive dealers in Hardware, Farm Implements, &c., at Owatonna, and during the past year have employed three traveling representatives, who have visited the trade in Southern Minnesota and Northern Iowa. The new company have already engaged the services of two additional men, who will go out on regular trips in a short time. The territory in which the new concern will seek business is that tributary to Minneapolis, and will be chiefly confined to Minnesota, Wisconsin, Iowa, and North and South Dakota. Mr. Nelson, president of the new company, has had an experience of 20 years in the retail Hardware and Implement business in Owatonna. Mr. Bouquet was formerly with Farwell, Ozmun, Kirk & Co. of St. Paul and represented that house on the road for more than 17 years. Mr. Kinyon, the treasurer, is cashier of the First National Bank of Owatonna.

### CONTENTS

|  | PAGE. |
|--|-------|
| The Brooklyn Bridge Accident. Illustrated .....                  | 1     |
| Midsummer Pig Iron Statistics .....                              | 3     |
| Machinery at the Pan-American Exposition.—III. Illustrated.....  | 4     |
| The Scarcity of Labor .....                                      | 5     |
| The Iron and Steel Institute.....                                | 5     |
| The Buffalo Forge Company's Double Generating Set. Illustrated.  | 6     |
| The Future of the Middlesbrough District.....                    | 6     |
| Tin Mining in the Malay Peninsula.....                           | 7     |
| The Davis Compression Coupling. Illustrated.....                 | 7     |
| Battle Ship "Maine" Launched.....                                | 7     |
| The Practical Application of Superheated Steam. Illustrated..... | 8     |
| The German Tariff.....   | 18    |
| Lake Iron Ore Matters .....                                      | 19    |
| Foreign Tariffs ..   | 20    |
| A Large Order for Power Transmission.....                        | 20    |
| Editorials:  |       |
| The Drought in the West.....                                     | 21    |
| What the Machinists Have Lost.....                               | 21    |
| Correspondence .....   | 22    |
| Drawback on Cast Iron Pipe.....                                  | 22    |
| The Pittsburgh Wire & Steel Company.....                         | 22    |
| The American Malleable Casting Company.....                      | 22    |
| The Strike in the Sheet, Bar and Hoop Mills.....                 | 23    |
| Steering Knuckles and Axle Ends.....                             | 23    |
| A Steel Casting Consolidation.....                               | 23    |
| The Molders' Strike.....   | 24    |
| Pacific Coast News.....  | 25    |
| The Edison Storage Battery.....                                  | 25    |
| The Pittsburgh Spiral Wire Hoop Company.....                     | 25    |
| Manufacturing:   |       |
| Iron and Steel.....  | 26    |
| General Machinery.....   | 26    |
| Engines and Boilers.....   | 27    |
| Buildings and Bridges.....                                       | 27    |
| Foundries .....  | 27    |
| Hardware.....  | 27    |
| Miscellaneous .....  | 27    |
| The Iron and Metal Trades:                                       |       |
| A Comparison of Prices.....                                      | 28    |
| Chicago.....   | 28    |
| Philadelphia.....  | 30    |
| Cleveland.....   | 30    |
| Cincinnati.....  | 31    |
| St. Louis.....   | 31    |
| Pittsburgh.....  | 32    |
| Birmingham.....  | 33    |
| New York.....  | 33    |
| Metal Market.....  | 34    |
| Worcester Notes.....   | 34    |
| Wheeling Mold & Foundry Company.....                             | 34    |
| The Machinists' Strike.....                                      | 35    |
| The Coe Brass Company—Buy the Chicago Brass Works.....           | 35    |
| Information Wanted.....  | 35    |
| Iron and Industrial Stocks .....                                 | 36    |
| Russia's Iron Production.....                                    | 36    |
| Central American Notes .....                                     | 37    |
| The New York Machinery Market .....                              | 37    |
| The Chicago Machinery Market.....                                | 38    |
| Cincinnati Machinery Market.....                                 | 39    |
| Obituary. Portrait.....  | 41    |
| Personal.....  | 41    |
| Hardware:  |       |
| Condition of Trade.....  | 42    |
| Notes on Prices.....   | 44    |
| Michigan Retail Hardware Dealers' Association.....               | 45    |
| Correspondence.....  | 46    |
| Western Classification Changes.....                              | 46    |
| Notes on Foreign Trade.....                                      | 47    |
| Geo. Brown's Net Price-List.....                                 | 49    |
| Gurney Refrigerator Company.....                                 | 49    |
| Standard Tool Company's New Catalogue.....                       | 49    |
| What to Do in August .....                                       | 50    |
| Requests for Catalogues, &c.....                                 | 50    |
| A Large Stock of Sheets.....                                     | 50    |
| Show Window Display. Illustrated.....                            | 51    |
| Sargent & Co.'s New Catalogue.....                               | 53    |
| Trade Items.....   | 53    |
| Among the Hardware Trade.....                                    | 54    |
| Price-Lists, Circulars, &c.....                                  | 55    |
| Miscellaneous Notes:   |       |
| Ad-El-Ité Tinted Enamels .....                                   | 55    |
| Remington Take Down Single Shot Rifle.....                       | 55    |
| The Improved Glass Washboard.....                                | 55    |
| The Lloyd Peerless Steel Tree Guard. Illustrated.....            | 55    |
| The Rollman Apple Cutter and Corer. Illustrated.....             | 55    |
| Burritt's Combination Clamp and Drill. Illustrated.....          | 56    |
| Remington Target Pistol. Illustrated.....                        | 56    |
| The Harrington Tea Percolator. Illustrated.....                  | 56    |
| Current Hardware Prices .....                                    | 57    |
| Current Metal Prices.....  | 61    |



## PRICE-LISTS, CIRCULARS, &c.

RUSSELL & ERWIN MFG. COMPANY, New Britain, Conn., and 43-47 Chambers street, New York: A 30-page booklet, envelope size, entitled, "Money Makers," containing illustrations and descriptive matter of selected goods including Builders' and other Hardware, such as various designs of Lock Sets, Door Bells, Door Checks, Transom Lifters, Axle Pulleys, Sash Fasteners, Padlocks, Squares, Screws and Bolts, the Russwin Wrench, Diamond Back Socket Firmer Chisels, &c.

EAGLE LOCK COMPANY, Terryville, Conn.: Pages for insertion in their volume 18 catalogue, covering a variety of Locks and Padlocks, Blanks, Number and Letter Plates, Post Office Signs and Plates, &c.

SEARLS MFG. COMPANY, Newark, N. J.: Catalogue No. 18 of Bathroom and Household Specialties. It relates to Towel Racks, Sponge and Soap Holders, Soap Cups, Brush and Comb Holders, Tumbler Holders, Combination Holders, Match Holders, Candlesticks, Toilet Paper Holders, Coat and Hat Hooks, &c. For the convenience of dealers and to enable them to show these bathroom and household articles to the best advantage, the company will furnish a sample line of pieces handsomely mounted on a velvet covered board with oak mountings, charging only for the samples, and not for the mountings.

STUDEBAKER BROS. MFG. COMPANY, South Bend, Ind.: A beautifully printed souvenir twentieth century catalogue, containing engravings of a few of their popular styles in Carriages. The book is also issued out of compliment to the Pan-American Exposition. Owing to the considerable cost of its production only a limited edition has been printed.

REMINGTON ARMS COMPANY, Ilion, N. Y., for whom the M. Hartley Company, 313-315 Broadway, New York, are agents: Revised price-list, illustrating and describing their product, including Double and Single Barrel Shot Guns, Take Down, Sporting and Target Rifles, Carabines, Military Rifles, Target Pistols, Derringers, &c., Bicycles and Sewing Machines. The new goods shown include the new Remington No. 6 Take Down Rifle, Remington No. 4 Rifle, now made to take down without extra charge, and the new Remington 10-inch single shot Target Pistol.

## MISCELLANEOUS NOTES.

### Ad-El-Ite Tinted Enamels.

The Adams & Elting Company, Department 10, Chicago, have issued an artistically designed folder relating to their new Ad-El-Ite tinted enamels. These enamels are stated to dry hard in 12 or 16 hours and to produce a smooth, hard, lustrous and durable surface not affected by moisture or heat. They are applicable to walls, ceilings, furniture, picture frames, iron beds, toys, radiators and in fact any surface of stone, iron or interior finish. The folder reproduces the 18 tints in which these enamels are made.

### Remington Take Down Single Shot Rifle.

Remington Arms Company, Ilion, N. Y., M. Hartley Company, 313-315 Broadway, New York, agents, are now making the Remington No. 4 rifle, single shot, in a new model to take down, without extra charge. The rifle is referred to by the manufacturers as light, accurate and durable and of the best material and workmanship. All parts are forged steel. It has a case hardened frame, walnut stock and forearm, rifle butt plate, octagon steel barrels and plain sight. The rifle has an automatic shell ejector, which throws the shell out of the rifle when the breech is opened. Gallery peep, Beach combination and sporting rear sights can be adjusted to this rifle if so ordered at an extra charge.

### The Improved Glass Washboard.

Saginaw Mfg. Company, Saginaw, Mich., have added to their extensive line of washboards an improved glass washboard, for which they are now about ready to fill orders. The rubbing surface being of glass, it is re-

marked that there is no chance for clothes to catch on the board and be torn, and with proper care the board should last for years.

### The Lloyd Peerless Steel Tree Guard.

The Lloyd Mfg. Company, Minneapolis, Minn., have brought out the new Peerless steel tree guard illustrated herewith. It is made entirely of steel and is japanned,



The Lloyd Peerless Steel Tree Guard.

to make a strong and attractive guard. The manufacturers pack the guards neatly and they are referred to as not being tangled when received by the purchaser. They are made in two standard sizes, 6 feet and 5 feet 6 inches in height, both being 8 inches in diameter.

### The Rollman Apple Cutter and Corer.

The apple cutter and corer shown by the accompanying cuts is made with a frame of cast iron, tinned. The



Fig. 1.—The Rollman Apple Cutter and Corer.

blades are securely soldered in so as to make a strong tool for the purpose intended. No. 7 cutter, the one shown in the illustrations, cuts apples into eighths and

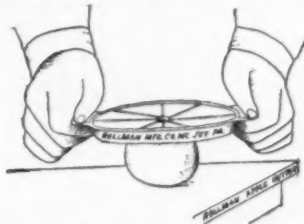


Fig. 2.—The Cutter Held on the Top of the Apple.

is designed for general use, while the No. 9, not illustrated, cuts apples into twelfths and is intended for the use of bakers and for pie baking. The Rollman apple-

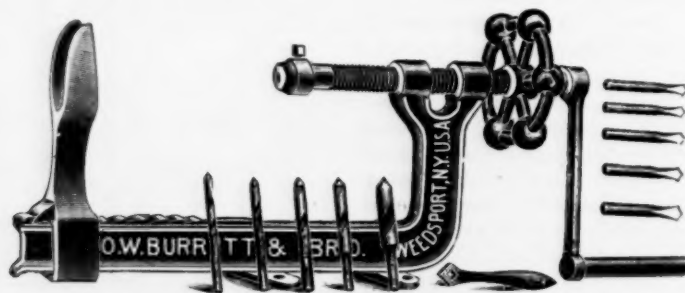
cutter and corer is shown in Fig. 1. Fig. 2 illustrates it held in position on top of the apple, preparatory to its



Fig. 3.—The Apple Cut and Cored.

being pressed down to cut and core the apple, as shown in Fig. 3. The device is put on the market by the Roll-

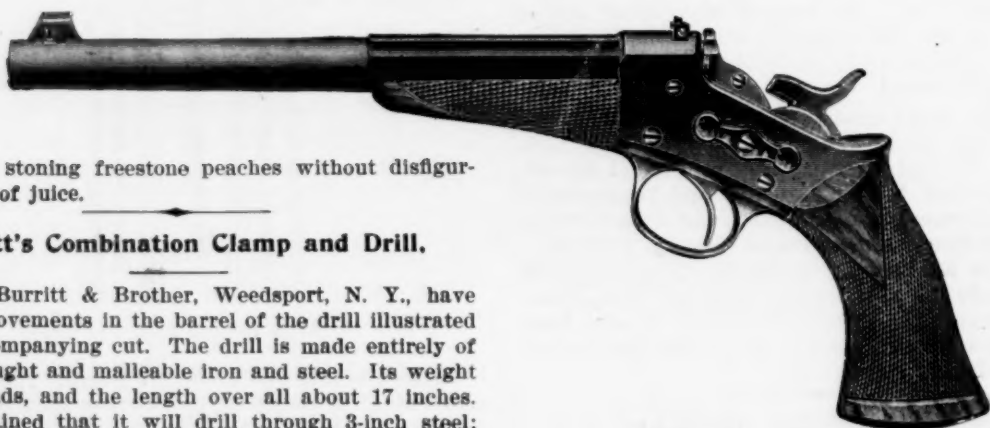
for three styles of cartridges, there being a separate and distinct fire arm for each of the following cartridges, viz.: .22 short rim fire, .22 long rifle rim fire and .44 Smith & Wesson Russian central fire cartridges. The action is a rolling breech block identical with that on the single shot Remington rifle. The pistol has a half octagon 10-inch barrel, carefully bored, rifled and finished. The stock and tip of selected walnut is finely checkered to give a firm grip. It is fitted with an elevating wind gauge, rear sight and an ivory tipped front sight, and is loaded by cocking the hammer and then pulling back the breech block, which automatically ex-



Burritt's Combination Clamp and Drill.

man Mfg. Company, Mount Joy, Pa., who are also manufacturers of the Rollman peach stoner, which is de-

tracts the shell. The cartridge is then inserted in the barrel and the breech block pushed back to place. Each



Remington 10-Inch Single Shot Target Pistol.

scribed as stoning freestone peaches without disfiguring or loss of juice.

#### Burritt's Combination Clamp and Drill.

O. W. Burritt & Brother, Weedsport, N. Y., have made improvements in the barrel of the drill illustrated in the accompanying cut. The drill is made entirely of brass, wrought and malleable iron and steel. Its weight is 6½ pounds, and the length over all about 17 inches. It is explained that it will drill through 3-inch steel; that it will drill holes to the center of a 7-inch circle; that it will countersink for all screws and tire bolts, and drill holes for all carriage and tire bolts. Each machine is furnished with five drills, the sizes being 3-16, ¼, 5-16, ⅜ and ½ inch. This drill is designed for the use of farmers, mill owners, threshers, &c. The manufacturers state that the drill can be screwed to a bench, fastened in a vise, or clamped to a vehicle or implement in the road or field and do its work perfectly.

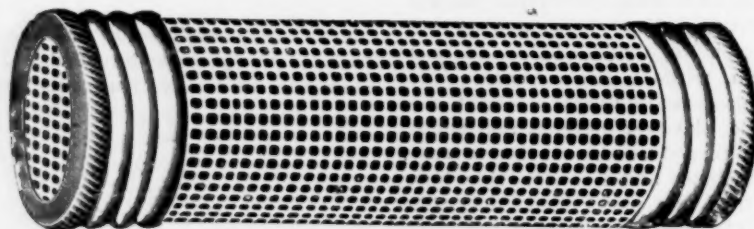
#### Remington Target Pistol.

Remington Arms Company, Ilion, N. Y., for whom the M. Hartley Company, 313-315 Broadway, New York.

pistol is targeted and accurately sighted, and the trigger pull adjusted to from 3 to 3½ pounds for target work. It weighs 2½ pounds.

#### The Harrington Tea Percolator.

The tea percolator herewith shown is put on the market by O. W. Burritt & Brother, Weedsport, N. Y. It is formed of a perforated nickel plated cylinder 4 inches in length, and about 1 inch in diameter. Perforated screw caps are fitted at each end. In use either cap is



The Harrington Tea Percolator.

are agents, have just put out the New Remington 10-inch single shot target pistol here illustrated. This is a new model and intended largely for target and gallery practice. It is designed to meet the demand of pistol experts and shooting galleries for a well balanced, accurate and finely adjusted arm. The pistol is made

unscrewed, tea or coffee put in, the cap replaced, and the percolator put in the pot. The advantage of using the percolator consists in the absence of dregs or grounds from the poured beverage. The device is recommended by the manufacturers for use by housekeepers, fishermen, hunters, campers, picnickers, &c.



# Current Hardware Prices.

REVISED JULY 30, 1901.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Range of Prices.**—A range of prices is indicated by means of the symbol @. Thus 33½@33¼@10% signifies that the price of the goods in question ranges from 33½ per cent. discount to 33¼ and 10 per cent. discount.

**Cut Prices.**—In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (May 3, 1900), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters Blind—

Domestic, ½ doz. \$3.00...33½@33¼@10%  
North's...10%  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Patent...25¢  
Tipton's Perfection...35¢

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anvils—American—

Angle Anvils...7¼@7¼@10%  
Buckhorn brand, Wrought...9¼@9¼@10%  
Common...7¼@7¼@10%  
Venton, Wrought...8¼@8¼@10%

## Imported—

Water Wright's...9¼@9¼@10%

## Anvil, Vise and Drill—

Waters Falls Co., \$18.00...30%

## Apple Parers—See Parers,

Apple, &c.

## Aprons, Blacksmiths'—

Mill Bros. Co.:  
Lots of 1 doz...25%  
Smaller Lots...30%  
Lots of 3 doz...30%

## Augers and Bits—

Com. Double Spur...70¢  
Sawing Machine Augers...60¢@10¢@10%

Car Bits, 12-in. twist...60¢@10¢@10%

Jennings' Pattern...60¢@10¢@10%

Auger Bits...60¢@10¢@10%

Hard's Auger and Car Bits...40¢@10%

Patent Pat. Auger Bits...25%

C. E. Jennings & Co.:  
No. 10 x 12 Lip. R. Jennings' List...40%

No. 30. R. Jennings' List...50%

Small Jennings' List...25¢@10¢@10%

Homestead Car Bits...15¢@10¢@10%

Mayhew's Countersink Bits...45%

Mayhew's Black...20%

Mayhew's Jennings' Pattern...35%

Small's Auger Bits...60%

Small's Bolt Hangers' Bits...50¢@10%

Small's Car Bits, 12-in. twist...60%

Wright's Jennings' Bits (R. Jennings' List)...50%

## Bit Stock Drills—

Standard List...65¢@65¢@5%

## Expansive Bits—

Clark's small, \$18; large, \$28...50¢@10%

Levin's Clark's Pattern, No. 1...50¢@10%

doz., \$28; No. 2, \$18...50¢@10%

C. E. Jennings & Co., Steer's Pat...35%

Small's...25%

## Gimlet Bits—

Common Double Cut, gro. \$2.25@2.75

German Pattern...gro. \$3.25@4.50

## Hollow Augers—

Wiley Pattern, per doz. \$11.00@11.50

Patent...25¢@10%

Patent...25¢@10%

Patent...20%

Wood's Universal...25%

## Ship Augers and Bits—

Patent...40%

Patent...40%

Patent...15¢@10%

Patent...40%

## Awl Hafts, See Hafts, Awl.

## Awls—

Handled...gro. \$2.75@3.10

Unhandle, Shouldered, gro. \$3.50@3.85

Unhandle, Patent...gro. 60¢@70¢

Awl Bits:

Handled...gro. 31¢@34¢

Unhandle, Shouldered, gro. 65¢@70¢

Handled, Common, gro. \$3.50@4.00

Handled, Socket, gro. \$11.50@12.00

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

Best Quality, best brands, \$5.50@5.75

Best Quality, other brands, \$5.25@5.50

Patent's Special Brands:

Good Quality...\$5.00@5.25

Good Quality...\$5.25@5.75

Cap, Hardened Axes...\$5.50@5.75

Patent, add 25¢ doz.

Axe Grease—See Grease, Axle.

## Axles—

Concord, Loose Collar...4¼@5¢

Concord, Solid Collar...4¼@5¢

No. 1 Common...5¼@5¢

No. 1's Solid, New Style...5¼@5¢

No. 2 Solid Collar...4¼@5¢

No. 11 to 14...70¢@74¢@10%

No. 15 to 18...75¢@74¢@10%

No. 19 to 22...75¢@74¢@10%

## Boxes, Axle—

Common and Concord, not turned...13. ¼@14¢

Common and Concord, turned...13. ¼@14¢

Half Patent...13. ¼@14¢

Patent...13. ¼@14¢

## Balances—

Caldwell new list...50%

Patman's...60%

## Spring—

Spring Balances...50¢@10¢@10%

Chatillon's:

Light Sag. Balances...40¢@10%

Straight Balances...40%

Circular Balances...50%

Large Dial...50%

Patman's...50%

## Barb Wire—See Wire, Barb.

Steel Cranebars, 10 to 40 lb., per lb. \$2.00@3.10c

## Beams, Scale—

Scale Beams, List Jan. 12, '95, 50¢@10%

Chatillon's No. 1...50%

Chatillon's No. 2...40%

## Beaters—Egg—

Standard Co.:

No. 5 Steel Handle Dover...\$6.50

No. 10 Cast Handle Dover...\$8.00

No. 10 Steel Handle Dover...\$8.00

No. 15 Extra Heavy Steel Handle...\$15.00

Rival, \$ gro. \$10.00

Taplin Mfg. Co.: \$ gro.

No. 50 Small Family size...\$6.50

No. 100 Regular Family size...\$8.00

No. 102 Regular Family size tinned...\$9.50

No. 150 Large Family size...\$15.00

No. 152 Large Family size, tinned...\$17.00

Lyons, Standard size...\$17.00

Wonder (S. S. & Co.)...\$7.50

## Bellows—

Blacksmith, Standard List, 70¢@10%

C. E. Jennings & Co., Blacksmith...60¢@10%

C. E. Jennings & Co., Hand...35%

## Blacksmiths—

Inch...\$0.32 \$3.35 \$3.40 \$3.45

Each...\$0.50 \$3.75 \$4.25 \$4.80 \$5.35 \$6.15

## Extra Length:

Each...\$4.00 \$5.50 \$5.10 \$5.60 \$6.10 \$7.50

## Molders—

Inch...9 10 11 12 14 16

Doz...\$6.75 7.25 8.50 9.50 12.00 14.50

## Hand—

Inch...6 7 8 9 10 12

Doz...\$3.75 4.25 4.50 5.00 5.7 6.75

## Bells—

Ordinary goods...75¢@75¢@10%

High grade...70¢@70¢@10%

Jersey...75¢@10%

Texas Star...50%

## Door—

Abbe's Gong...45%

Barton Gong...55%

Home, R. & E. Mfg. Co.'s...55¢@10%

Lever and Pull, Sargent's...40¢@40¢@10%

Yankee Gong...35%

Hand—

Hand Bells, Polished...60¢@50¢@10%

White Metal...55¢@55¢@10%

Nickel Plated...50¢@50¢@10%

Swiss...60¢@60¢@10%

Silver Chrome...50¢@50¢@10%

Miscellaneous—

Farm Bells...10¢@10¢@10%

Steel Alloy Church and School...50¢@50¢@10%

National Bell Foundry Co.:  
Superior Cast Steel Church and School Bells...50¢@50¢@10%

Willmot & Hobbs Mfg. Co., Gongs...70%

Belting—Rubber—

Agricultural (Low Grade)...75¢@10¢@10%

Common Standard...75¢@75¢@10%

Standard...70¢@70¢@10%

Extra...60¢@60¢@10%

High Grade...50¢@50¢@10%

Boston Belting Co.:  
Seamless Stitched, Imperial...45¢@5%

Boston...50¢@5%

Niagara...50¢@5%

Leather—

Extra Heavy, Short Lap...50¢@10¢@60%

## Regular Short Lap 60¢@10¢@80¢@10¢@5%

Standard...60¢@10¢@10¢@70¢@5%

Light Standard...70¢@70¢@10%

## Cotton—

Rosendale-Reddaway B. & H. Co.:  
Sphinx Brand...60¢@10%

Durable Brand...70%

## Bench Stops—See Stops, Bench

## Benders and Upsetters,

Tire—

Green River Tire Benders and Upsetters...90%

Soddard's Lightning Tire Upsetters...40¢@50%

## Bicycle Goods—

John S. Leng's Son's 1899 list:

Chain...50%

Parts...50%

Spokes...50%

Tubes...60%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—

See Augers and Bits.

## Bit Holders—See Holders.

## Blind Adjusters—See Ad-

justers, Blind.

## Blind Fasteners—See Fast-

eners, Blind.

## Blind Staples—See Staples,

Blind.

## Blocks—Tackle—

Common Wooden...70¢@70¢@10%

Cleveland's steel...60¢@10¢@70%

Ford's Star Brand Self Lubricating...60¢@10%

Hollow Steel, Ford's Pat. Star Brand...50¢@10%

Lane's Patent Automatic Lock and Junior...30%

Stowell's Novelty, Mal. Iron...50¢@10%

See also Machines, Hoisting.

## Boards Stove—

Zinc, Crystal, &c...40¢@10¢@5%

## Bolts—

Carriage, Machine &c.—

Common, list Jan. 30, '95...65¢@10¢@5%

Norway Iron, \$3.00, list Oct. 7, '94...80¢@80¢@5%

Phila. Eagle, \$3.00 list May 24, '99...80¢@80¢@10%

Bolt Ends, list Jan. 30, '95, 70¢@74¢@5%

Machine, list Oct. 1, '99...70¢@74¢@5%

Machine with C. P. C. & T. Nuts...65¢@12½¢

Note—The rapid advances in manu-

facturers' prices enable the jobbers to cut prices freely.

## Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch...3 4 5 6 8

Per doz...\$0.26 .30 .39 .47 .65

Cast Iron Spring Foot:

Inch...6 8 10

Per doz...\$1.00 1.25 1.75

Cast Iron Chain, Flat, Japanned:

Inch...6 8 10

Per doz...\$0.75 1.05 1.30

Cast Iron Shutter, Brass Knob:

Inch...6 8 10

Per doz...\$0.87 .90 1.00

Wrought Barrel Brass Knob:

Inch...3 4 6 8

Per doz...\$0.44 .50 .51 .70 1.25





**Gates, Molasses and Oil—**

**Cauges**  
Marking, Mortise, etc. 55¢ 10¢ 55¢ 10¢ 10¢  
Barrett's Comb. Roller Gauge.  
doz. \$6.75 @ 7.35  
Stanley R. & L. Co.'s Butt & Babbet  
Gauge. 80¢ 10¢  
Wire, Brown & Sharpe's. 35¢  
Wire, Morse's. 35¢  
Wire F. S. & W. Co. 30¢ 80¢ 10¢

**Gimlets—Single Cut—**  
Nail, Metal, Assorted, gro. \$1.50 @ 1.80  
Spike, Metal, Assorted, gro. \$2.80 @ 3.25  
Nail, Wood Handled, Assorted,  
gro. \$1.75 @ 2.00  
Spike, Wood Handled, Assorted,  
gro. \$3.50 @ 3.50

**Glass, American Window**  
Jobbers' List, Jan. 21, 1901.

Less than Carloads ..... 80¢ 80¢  
Carloads ..... 85¢ 85¢  
800 Boxes ..... 87¢

**Glue—Liquid, Fish—**  
List A, Bottles or Cans, with Brush.  
57 1/2 @ 50¢  
List B, Cans (1/2 pts., pts., qts.)  
33 1/2 @ 48¢  
List C, Cans (1/2 gal., gal.)  
25 @ 45¢  
International Glue Co. (Martin's)  
40¢ 10¢ 50¢

**Glue Pots—See Pots, Glue.**

**Grease, Axle—**  
Common Grade, gro. \$5.00 @ 6.00  
Dixon's Everlasting, 10 lb.ails, ca. 35¢  
Dixon's Everlasting, in bxs., 5 doz. 1 b.  
\$1.80; 2 doz. \$2.00

**Grindstones—**  
Bicycle Grindstones, each ..... \$2.50 @ 3.00  
Pike Mfg. Co.:  
Improved Family Grindstones,  
per inch, per doz. \$2.00 (89¢ 1/2)  
Pike Mowse Knife and Tool  
Grinder, each ..... \$6.00  
Velo Ball Bearing, mounted, Angle  
Iron Frames ..... each, \$3.25

**Guards, Snow—**  
Cable and Wire Spring Co. 1  
Galv. Steel 1000 ..... \$9.00  
Copper 1000 ..... \$18.00

**Hack Saws—See Saws.**

**Halts, Awi—**  
gro.  
Peg Patent, Leather Top, \$4.90 @ 5.25  
Peg Patent, Plain Top, \$3.50 @ 3.75  
Sewing, Brass Ferrule, \$1.50 @ 1.60  
Saddlers', Brass Ferrule, \$1.35 @ 1.45  
Fcu, Common, \$1.25 @ 1.35  
Brad, Common, \$1.50 @ 1.75

**Halters and Ties—**  
Covert Mfg. Co.:  
Web ..... 45¢ 2¢  
Jute Rope ..... 45¢ 2¢  
Sisal Rope ..... 30¢ 2¢  
Covert's Saddlery Works:  
Web and Leather Halters ..... 70¢  
Jute and Manila Rope Halters ..... 70¢  
Sisal Rope Halters ..... 60¢ 20¢  
Jute, Manila and Cotton Rope Ties ..... 70¢  
Sisal Rope Ties ..... 60¢ 20¢

**Hammers—**  
Handled Hammers—  
Heller's Machinists' ..... 50¢ 50¢ 55¢  
Heller's Farriers ..... 50¢ 50¢ 55¢  
Magnetic Tack, Nos. 1, 2, 3, \$1.35, \$1.50,  
\$1.75.  
Peck, Stow & Wilcox ..... 50¢ 10¢  
Fayette St. Plumb:  
Jumb, A. E. Nail ..... 40¢ 10¢ 7 1/2¢  
Engineers' and B. S. Hand, 40¢ 10¢ 2 1/2¢  
Machinists' Hammers ..... 40¢  
Riveting and Timmers ..... 40¢ 10¢ 7 1/2¢  
Sargent's C. S. New List ..... 45¢

**Heavy Hammers and Sledges—**  
1 lb. and under, lb. 45¢  
2 to 5 lb. lb. 55¢ 80¢ 10¢ 20¢  
Over 5 lb. lb. 50¢ 40¢ 60¢ 85¢  
W. Dickinson's Smiths' ..... 95¢ @ 100¢ lb.

**Handcuffs and Leg Irons**  
See Police Goods.

**Handles—**  
Agricultural Tool Handles—  
See Pick, etc.  
Hoe Rake, Fork, etc. 60¢ 60¢ 10¢  
Shovel, etc., Wood D Handle, 50¢ 50¢ 5¢  
Cross-Cut Saw Handles—  
Atkins ..... 40¢ 5¢  
Champion ..... 45¢ 45¢ 10¢  
D-won ..... 50¢

**Mechanics' Tool Handles—**  
Auger, assorted, gro. \$2.50 @ 3.50  
Brad Axl ..... gro. \$1.25 @ 1.50  
Chisel Handles:  
Apple Tanged Firmer, gro. ass'd,  
\$2.25 @ 2.55; large, \$2.50 @ 3.20.  
Ricky Tanged Firmer, gro. ass'd,  
\$1.75 @ 2.20; large, \$2.50 @ 3.70.  
Apple Socket Firmer, gro. ass'd,  
\$1.70 @ 1.85; large, \$2.00 @ 2.25  
Hickory Socket Firmer, gro. ass'd,  
\$1.60 @ 1.75; large, \$1.75 @ 2.00  
Hickory Socket Framing, gro. ass'd,  
\$2.50 @ 3.75; large, \$2.55 @ 3.85  
File, assorted, gro. \$1.00 @ 1.15  
Hammer, Hatchet, Axe, etc. 60¢  
Hand Saw, Varnished, doz. 70¢ 75¢  
Not Varnished ..... 55¢ 50¢  
Plane Handles:  
Jack, doz. 55¢; Jack Bolted, 55¢ 60¢  
Fore, doz. 35¢ 35¢; Fore, Bolted, 70¢ 75¢

**Hangers—**  
Barn Door, New Pattern, Round  
Groove, Regular:  
Inch ..... 5 4 5 6 8  
Doz. \$0.55 1.30 1.50 1.90 2.30

**Barn Door, New England Pattern, Check Back, Regular:**

Inch ..... 5 4 5 6 8  
Doz. \$1.50 1.75 2.50 3.00  
Chicago Spring Butt Co.:  
Friction ..... 35¢  
Oscillating ..... 35¢  
Big Twin ..... 35¢  
Chisholm & Moore Mfg. Co.:  
Baggage Car Door ..... 50¢  
Elevator ..... 40¢  
Railroad ..... 55¢  
Cronk Hanger Co.:  
100-lb. Axle ..... 60¢  
Roller Bearing ..... 60¢ 10¢  
Lane Bros.:  
Parlor Ball Bearing ..... \$4.00  
Parlor, Standard ..... \$3.95  
Parlor, New Model ..... \$7.75  
Parlor New Champion ..... \$2.25  
Barn Door, Standard ..... 50¢ 10¢ 10¢ 5¢  
Special ..... 60¢ 10¢  
Lawrence Bros.:  
Advance ..... 60¢  
Cleveland ..... 70¢  
Crown ..... 60¢  
New York ..... 60¢  
Pierces ..... 60¢ 10¢  
Sterling ..... 60¢  
McKinney Mfg. Co.:  
No. 1, Special, \$15 ..... 60¢ 10¢  
No. 2, Standard, \$18 ..... 60¢ 10¢  
Stowell Mfg. and Foundry Co.:  
Acme Parlor Ball Bearing ..... 40¢  
Atlas ..... 60¢  
Badger Barn Door ..... 50¢  
Baggage Car Door ..... 50¢  
Climax Anti-Friction ..... 50¢  
Elevator ..... 40¢  
Express ..... 50¢  
Interstate ..... 60¢  
Lundy Parlor Door ..... 50¢  
Magic ..... 50¢  
Matchless ..... 60¢  
Nansen ..... 60¢ 10¢  
Railroad ..... 50¢  
Street Car Door ..... 50¢  
Steel, Nos. 300, 404, 500 ..... 40¢ 15¢  
Stowell Parlor Door ..... 50¢  
Wild West, Nos. 300, 404, 500 ..... 50¢  
Zenith for Wood Track ..... 50¢

**Taylor & Boggis Foundry Co.:**  
Kiddie's ..... 50¢ 15¢ 10¢ 5¢  
Columbian Hdw. Co.:  
American Trackless ..... 33 1/2 @ 10¢  
Wilcox Mfg. Co.:  
Bike Roller Bearing ..... 60¢ 10¢  
C. J. Roller Bearing ..... 60¢ 10¢  
Cycle Ball Bearing ..... 50¢  
Dwarf Ball Bearing ..... 40¢  
Ives Wood Track ..... 60¢ 10¢  
L. T. Roller Bearing ..... 60¢ 10¢ 5¢  
New Era Roller Bearing ..... 50¢ 10¢  
O. K. Roller Bearing ..... 60¢ 10¢ 5¢  
Prindle, Wood Track ..... 60¢  
Richards' Wood Track ..... 60¢  
Richards' Steel Track ..... 50¢ 10¢  
Saw, Steel, 10-in. ing. 60¢ 10¢ 5¢  
Tandem Nos. 1 and 2 ..... 40¢  
Underwriters' Roller Bearing ..... 40¢  
Wilcox Auditorium Ball Bearing ..... 50¢  
Wilcox Barn Trolley No. 123 ..... 40¢  
Wilcox Fire Trolley, Roller  
Bearing ..... 40¢  
Wilcox Le Roy Noiseless Ball  
Bearing ..... 40¢  
Wilcox New Century ..... 50¢ 10¢ 10¢  
Wilcox Trolley Ball Bearing ..... 40¢

**Harness Menders—See Menders.**

**Harness Snaps—See Snaps.**

**Hasps—**  
McKinney's Perfect Hasp 1/2 doz. 50¢  
Wrought Hasps, Staples, etc.—See  
Wrought Goods.

**Hatchets—**  
Best Brands ..... 50¢ 50¢ 10¢  
Cheaper Brands ..... 60¢ 60¢ 10¢  
Note.—Net prices often made.

**Hay and Straw Knives—**  
See Knives.

**Hinges—**  
Blind and Shutter Hinges—  
Surface Gravity Locking Blind:  
(Victor; National; 1883 O. P.;  
Niagara; Clark's O. P.; Clark's  
Tip; Buffalo.)  
No. .... 1 3 5  
Doz. pair ..... \$0.75 1.45 2.50  
Mortise Shutter:  
(L. & P. O. S. Dixie, etc.)  
No. .... 1 1 1/2 3 5  
Doz. pair ..... \$0.60 55 55 55  
Mortise Reversible Shutter, (Buffalo,  
etc.)  
No. .... 1 1 1/2 3  
Doz. pair ..... \$0.55 55 55 55  
North's Wood, \$9.00; No. 3, for Brick  
\$11.50 ..... 70¢ 75¢  
Parker ..... 70¢ 75¢  
Reading's Gravity ..... 70¢ 10¢  
Sargent's, Nos. 1, 3, 5, 11 & 18 ..... 70¢ 10¢  
Stanley's Steel Gravity Blind Hinges,  
1/2 doz. sets, without screws, \$0.50;  
with screws, \$1.15.  
Wrightsville H'dware Co.:  
O. S. Lull & Porter ..... 50¢ 35¢  
Acme, Lull & Porter ..... 75¢ 10¢  
Queen City Reversible ..... 75¢ 10¢  
Stenger's Positive Locking, Nos. 1 &  
3 ..... 70¢ 10¢ 5¢  
Shepard's Noiseless, Nos. 60, 65, 65 ..... 70¢ 10¢  
Niagara, Gravity Locking, Nos. 1, 2 &  
5 ..... 75¢ 75¢  
1883 Old Patn. Nos. 1, 3 & 5 ..... 75¢ 75¢  
T. F. N. No. 1, 3 & 5 ..... 75¢ 75¢  
Buffalo Gravity Locking, Nos. 1 &  
5 ..... 75¢ 75¢  
Shepard's Double Locking, Nos. 20  
& 25 ..... 70¢ 10¢  
Champion Gravity Locking, No. 75 ..... 75¢ 75¢  
Steamboat Gravity Locking, No. 10 ..... 75¢ 75¢  
Pioneer, Nos. 060, 45 & 54 ..... 75¢ 75¢  
Empire, Nos. 101 & 103 ..... 70¢ 75¢  
W. H. Co.'s Mortise Gravity Locking,  
No. 3 ..... 60¢ 10¢

**Gate Hinges—**  
Clark's or Shepard's—Doz. sets:  
No. .... 1 3  
Hinges with Latches, \$1.50 2.50 3.50

**Hinges only.....\$1.30 1.70 2.90**

**Latches only.....65 65 95**  
**New England:**  
With Latch ..... doz. \$1.55  
Without Latch ..... doz. \$1.25  
**Reversible Self-Closing:**  
With Latch ..... doz. \$1.80  
Without Latch ..... doz. \$1.45  
**Western:**  
With Latch ..... doz. \$1.40 @ 1.75  
Without Latch ..... doz. \$0.95 @ 1.20  
Wrightsville H'dware Co.:  
Shepard's or Clark's, Nos. 1 & 2, 45¢ 3 1/2¢  
Shepard's or Clark's, No. 8 ..... 55¢ 55¢

**Spring Hinges—**  
Holdback, Cast Iron, gro. \$7.00 @ 7.75  
Non-Holdback, Cast Iron ..... gro. \$5.50 @ 6.75

**J. Barsdale**  
Barsdale's Patent Cheeking ..... 15¢  
Bommer Bros.:  
Bommer Ball Bearing Floor Hinges  
Bommer Spring Hinges ..... 40¢  
Chicago Spring Butt Co.:  
Chicago ..... 35¢  
Floor Hinge ..... 50¢  
Garden City Engine House ..... 35¢  
Keene's Saloon Door ..... 35¢  
Triple End ..... 50¢  
Hoffman Hinge & Foundry Co.:  
No. 70 & 80 Holdback Detachable \$2.50  
Lawson Mfg. Co.:  
Matchless ..... 35¢  
Matchless Pivot ..... 45¢  
Payson Mfg. Co.:  
Oblique ..... 50¢ 10¢  
Stover Mfg. Co.:  
Ideal, No. 18, Detachable, 1/2 gr. \$12.50  
Ideal, No. 4 ..... 1/2 gr. \$9.00  
New Idea No. 1 ..... 1/2 gr. \$9.00  
New Idea, Double Acting ..... 45¢  
Columbian Hdw. Co.:  
Acme, Wrt. Steel ..... 30¢  
Acme, Brass ..... 30¢  
American ..... 30¢  
Columbia, No. 14 ..... 1/2 gr. \$9.00  
Columbia, No. 18 ..... 1/2 gr. \$9.50  
Columbia, Adjustable ..... 30¢  
Gem, new list ..... 35¢  
Oxford, new list ..... 1/2 gr. \$19.50  
Oxford, new list ..... 35¢

**Wrought Iron Hinges—**  
Strap and T Hinges, etc., list Mar.  
15, 1901:  
Light Strap Hinges ..... 75¢  
Heavy Strap Hinges ..... 80¢  
Light T Hinges ..... 70¢  
Heavy T Hinges ..... 85¢  
Extra Heavy T Hinges ..... Extra  
75¢ 10¢ 80¢ 35¢

**Hinge Hasps.....60¢**  
**Cor. Heavy Strap.....80¢**  
**Cor. Ex. Heavy T.....75¢ 10¢**

**Screw Hook 1 1/2 to 18 in. lb. 3 0**  
**and Strap. 1 1/2 to 36 in. lb. 3 1/2 0**  
**Screw Hook and Eye:**  
1/4 to 1 inch ..... lb. 5 0  
1/2 inch ..... lb. 6 0  
3/4 inch ..... lb. 7 0

**Miscellaneous—**  
Hoffman's Steel Spring Butt Hinges ..... 40¢ 10¢  
Hoffman's Offset Refrigerator Hinges ..... 40¢ 10¢

**Hods, Coal—**  
15 15 17 18 inch.  
Galv. Open, \$2 10 2.55 3.80 5.15 1/2 doz.  
Jap. Open, \$1.60 1.95 2.10 3.40 1/2 doz.  
Galv. Funnel, \$2.55 3.05 3.25 3.55 1/2 doz.  
Jap. Funnel, \$2.10 2.45 2.65 2.90 1/2 doz.

**Hoes—Eye—**  
Scovill and Oval Pattern, ..... 60¢ 5¢ 60¢ 10¢ 5¢  
Grub, list Feb. 25, 1899, 70¢ 5¢ @ 70¢ 10¢  
D. & H. Scovill ..... 95¢

**Handled—**  
Sept. 1, 1900, List:  
Field and Garden ..... 75¢ 25¢  
Ladies', Boys', Toy and Onion ..... 70¢ 10¢ 10¢  
Street and Mortar ..... 75¢ 75¢ 10¢  
O'Brien ..... 70¢ 10¢ 10¢ 5¢  
Planters' ..... 70¢ 30¢  
Weeding ..... 75¢  
Note.—Manufacturers and jobbers use  
a diversity of lists, and often sell at net  
prices.  
Ft. Madison Crucible Garden Hoe ..... 75¢ 35¢  
Ft. Madison Crescent Cultivator Hoe ..... 75¢ 10¢ 25¢  
Ft. Madison Mattock Hoe ..... 75¢ 10¢ 25¢  
Regular Weight ..... 1/2 doz. \$4.50  
Junior Size ..... 1/2 doz. \$4.00  
Ft. Madison Sprouting Hoe, 1/2 doz. \$4.00  
Ft. Madison Dixie Tobacco Hoe, 75¢ 30¢  
Kretzinger's Cut Easy, per doz. 75¢ 25¢  
W. & O. Ivanhoe ..... 75¢ 25¢  
W. B. Cultivator Hoe ..... 75¢ 10¢ 25¢  
Acme Weeding ..... 75¢ 10¢ 25¢  
W. & O. Lightning Shovel Hoe, 1/2 doz. \$4.25

**Hog Rings and Ringers—**  
See Rings and Ringers.

**Holating Apparatus—**  
See Machines, Holating.

**Hollow Ware—**  
See Ware, Hollow.

**Holders—Bit—**  
Angular, 1/2 doz. \$24.00 ..... 45¢ 10¢  
Door ..... 30¢

**Empire—**  
File and Tool—  
C. E. Jennings & Co. Model Tool Hold-  
ers ..... 33 1/2 @ 35¢  
Nicholses File Holders and File Han-  
dles ..... 33 1/2 @ 35¢

**Hooks—Cast Iron—**  
Bird Cage, Sargent's List ..... 50¢ 10¢ 60¢  
Ceiling, Sargent's List ..... 40¢ 10¢  
Clothes Line, Hoffman's ..... 40¢ 10¢  
Clothes Line, Sargent's List 50¢ 10¢ 40¢  
Clothes Line, Stowell's ..... 70¢  
Clothes Line, Reading, Lg ..... 85¢ 0¢ 55¢ 10¢ 10¢  
Coat and Hat, Stowell's ..... 70¢  
Coat and Hat, Reading ..... 70¢ 75¢  
Coat and Hat, Sargent's List ..... 45¢ 10¢

**Coat and Hat, Wrightsville ..... 55¢ 10¢**

**Harness, Reading List ..... 70¢ 10¢ 75¢**

**Wire—**  
Belt ..... 80¢  
Wire C. & H. Hooks, 60¢ 10¢ 60¢ 10¢ 5¢  
Atlas, Coat and Hat:  
Single Cases ..... 45¢  
10 Case Lots ..... 45¢ 10¢  
Coat Harness ..... 50¢ 10¢ 5¢  
Wire Coat and Hat:  
Acme ..... 40¢  
R. B. ..... 40¢  
V. Brace, Chief and Car ..... 40¢  
Gem ..... 40¢  
Bright Wire Goods—See Wire.

**Wrought Iron—**  
Box, 6 in., per doz. \$1.50; 8 in., \$1.75;  
10 in., \$2.00.  
Cotton ..... doz. \$1.05 @ 1.25  
Wrought Staples, Hooks, etc.—  
See Wrought Goods.

**Miscellaneous—**  
Brush, Light, doz. \$5.50; Medium, \$6.00; Heavy, \$6.50  
Grass, Nos. 1 2 3 4  
Best ..... \$1.50 1.75 1.00  
Common ..... \$1.30 1.50 1.40 1.60  
Potato and Manure ..... 70¢  
Whistletraw ..... lb. 45¢  
Hooks and Eyes:  
Brass ..... 60¢ 10¢ 10¢ 70¢  
Malleable Iron ..... 70¢ 5¢ 70¢ 10¢  
Covert Saddlery Works' Self Looking  
Gate and Door Hook ..... 60¢  
Covert Picture ..... 60¢ 10¢  
Bench Hooks—See Bench Stops.  
Corn Hooks—See Knives, Corn.

**Horse Nails—See Nails, Horse**

**Horseshoes—**  
See Shoes, Horse.

**Hose Rubber—**  
Garden Hose, 1/4-inch:  
Competition ..... ft. 4 1/2 @ 1 1/2¢  
1-ply Standard ..... ft. 5 0 @ 1 1/2¢  
2-ply Standard ..... ft. 5 0 @ 2 0¢  
1-ply extra ..... ft. 9 10 @ 1 1/2¢  
2-ply extra ..... ft. 11 10 @ 2 0¢  
Cotton Garden, 1/4-in., coupled:  
Low Grade ..... ft. 8 0 @ 2 0¢  
Fair quality ..... ft. 8 0 @ 2 0¢

**Irons—Sad—**  
From 4 to 10 ..... lb. 20¢ 5 1/2¢  
B. B. Sad Irons ..... lb. 3 1/2 @ 1 1/2¢  
Chinese Laundry ..... lb. 60¢ 10¢  
Chinese Sad ..... lb. 3 1/2 @ 3 1/2¢  
Mrs. Potts', per set:  
Nos. 50 55 60 65  
67 @ 75¢ 64 @ 50¢ 77 @ 85¢ 76 @ 75¢  
New England Pressing, lb. 5 1/2 @ 5 1/2¢

**Soldering—**  
Soldering Coppers, 1 & 1 1/2 lb., \$1 @ 1 1/2¢  
2 1/2 lb., 19 @ 2 1/2¢  
Covert Mfg. Co. ..... 20¢ 25¢  
Smith & Hemenway Co's Sets ..... 70¢

**Pinking—**  
Pinking Irons ..... doz. 50¢ 80¢

**Jack Screws—See Screws.**

**Jacks, Wagon—**  
Covert Mfg. Co. Steel ..... 45¢ 25¢  
Covert's Saddlery Works ..... 60¢ 10¢  
Daley ..... 60¢ 10¢  
Victor ..... 60¢ 10¢  
Lockport ..... 40¢ 40¢ 10¢  
Lane's Steel ..... 38 1/2 @ 25¢

**Kettles—**  
Brass, Spun, Plain ..... \$0 @ 25¢  
Enamelled and Cast Iron—See Ware,  
Hollow.

**Knife Sharpeners—**  
See Sharpeners, Knife.

**Knives—**  
Butcher, Shoe, etc.—  
Foster Bros' Butcher, etc. .... 80¢  
Smith & Hemenway Co. .... 40¢ 10¢  
Hay and Straw—See Hay Knives.

**Corn—**  
Ft. Madison Cut Easy, 1/2 doz. \$3.95  
Withington Acme, 1/2 doz. \$2.65; Dent,  
\$2.75; Adl. Serrated, \$2.90; Ser-  
rated, \$2.10; Yankee No. 1, \$1.50;  
Yankee No. 2, \$1.15.

**Drawing—**  
Standard List ..... 70¢ 5¢ 70¢ 10¢  
Adjustable Handle ..... 25¢  
Bradley's ..... 35¢  
Cantelo's Folding ..... 60¢ 50¢ 5¢  
C. E. Jennings & Co. Nos. 48, 46, 40 & 10¢  
Jennings & Griffin ..... 60¢ 25¢  
Swan ..... 70¢ 10¢ 30¢  
Watrous ..... 25¢  
L. & J. White ..... 30¢ 25¢ 25¢

**Hay and Straw—**  
Lightning Pat n., per doz. \$2.55 @ 3.50  
Iwan's Sickle Edge ..... 1/2 doz. \$1.00  
Iwan's Serrated ..... 1/2 doz. \$1.00  
Lightning, (Genuine) ..... 1/2 doz. \$2.50 @ 3.50  
Maine ..... 1/2 doz. \$3.50

**Minoling—**  
Buffalo ..... 1/2 gro. \$15.00

**Miscellaneous—**  
Farriers' ..... doz. \$2.00 @ 3.00  
Wostenholm's ..... 1/2 doz. \$3.00 @ 3.25

**Knobs—**  
Base, 1/4-inch, Birch, or Maple,  
Rubber tip, gro. \$1.90 @ 1.95  
Carriage, Jap. all sizes, gro. 30¢ 35¢  
Door, Mineral ..... doz. 60¢ 65¢  
Door, Por. Jap'd ..... doz. 65¢ 70¢  
Door, Por. Nickel ..... doz. \$2.00 @ 3.10  
Bardley's Wood Door, Shutter, etc., 15¢  
Picture, Sargent's ..... 60¢ 10¢

**Ladders, Step—**  
Handy Ladder Works:  
Extended Shipped Shipped  
Length, Length, Ready for K. D.  
Feet. Feet. Use. Per doz. Per doz.  
4 ..... 7 ..... \$16.00 ..... \$14.00  
5 ..... 9 ..... 19.50 ..... 17.00  
6 ..... 11 ..... 24.50 ..... 21.00  
7 ..... 13 ..... 29.50 ..... 25.00  
8 ..... 15 ..... 34.00 ..... 29.00  
9 ..... 17 ..... 38.00 ..... 33.00  
10 ..... 19 ..... 42.00 ..... 37.00  
11 ..... 21 ..... 46.00 ..... 40.00  
12 ..... 23 ..... 51.00 ..... 45.00

**Ladies—Melting—**

A. & C. Mfg. Co. 25¢  
P. S. & W. 40¢  
Reading 50¢  
Sargent's 40¢

**Lanterns—Tubular—**

Regular Tubular, doz. \$4.35 to \$4.75  
Side Lift Tubular, doz. \$4.75 to \$5.25  
Square Lift Tubular, doz. \$4.75 to \$5.25  
Other styles 40¢ to 10¢

**Bull's Eye Police—**

No. 1, 2 1/2 inch \$3.50  
No. 2, 3 inch \$4.00

**Latches, Thumb—**

Roggin's Latches, doz. 35¢ to 53¢

**Lawn Mowers—**

See Mowers, Lawn.

**Leaders Cattle—**

Small, doz. 50¢; large, 55¢

**Lemon Squeezers—**

See Squeezers, Lemon.

**Lifters, Transom—**

Solid Grip, Rayson Mfg. Co. 80¢  
R. & E. 45¢

**Lines**

Wire Clothes, Nos. 18 19 20  
100 feet \$1.80 1.90 1.65  
75 feet \$1.80 1.70 1.30

**Oceanic Mills.**

Crown Solid Braided Chalk, 33¢  
Mason's, No. 0 to No. 5 33¢  
Samson Cordage Works 40¢

Solid Braided Chalk, No. 0 to 3 40¢  
Silver Lake Braided Chalk, No. 0, \$3.00;  
No. 1, \$3.50; No. 2, \$7.00; No. 3, \$7.50  
No. 4, \$8.00

**Locks—Cabinet—**

Cabinet Locks 33¢ to 39¢  
Door Locks, Latches, &c.—  
[Net prices are very often made on  
these goods.]

Reading Hardware Co. 40¢  
R. & E. Mfg. Co. 20¢  
Sargent & Co. 40¢ to 10¢

**Elevator—**

Stowell's 89¢

**Padlocks—**

Wrought Iron 75¢ to 80¢  
R. & E. Mfg. Co. Wrt. Steel & Brass 50¢

**Sash, &c.—**

Fitch's 60¢  
Bronze and Brass 60¢  
Iron 70¢

**Yves Patent—**

Bronze and Brass 62¢  
Iron 65¢  
Wrought Bronze and Brass 55¢  
Wrought Steel 40¢  
Payson's Signal 30¢  
Reading 60¢ to 10¢

**Machines—Boring—**

Without Augers. Upright. Angular.

Improved No. 3 \$4.25 No. 1 \$5.00  
Improved No. 4 \$7.75 No. 2 \$3.38  
Improved No. 5 2.75  
Jennings 2.50 3.00  
Miller's Falls 5.75  
Snell's, Rice's Pat. 2.50 2.75  
Swan's, No. 500 1.10 No. 200 6.43

**Holsting—**

Moore's Anti-Friction Differential Pulley Block 30¢  
Moore's Hand Holst, with Lock Brake 20¢  
Moore's Portable Pneumatic Holst 25¢

**Ice Cutting—**

Chandler's 15¢

**Washing—**

Wayne American, doz. \$28.00  
Western Star, No. 2, doz. 28.00  
Western Star, No. 3, doz. 30.00  
St. Louis, No. 41, doz. 30.00

**Mallets—**

Hickory 45¢ to 50¢  
Lignum vitae 45¢ to 50¢  
Tinner's, Hickory and Applewood, doz. 50¢ to 55¢

**Mats—**

Elastic Steel (W. G. Co.) 10¢

**Mattocks—**

See Picks and Mattocks.

**Meat Cutters—**

See Cutters, Meat.

**Milk Cans—See Cans, Milk**

**Mills—Coffee—**

Enterprise Mfg. Co. 25¢ to 30¢  
National, list Jan. 1, '94 30¢  
Parker's Columbia and Victoria 30¢

Parker's Box and Side 50¢ to 100¢  
Swift, Lane Bros. 50¢ to 100¢

**Mincing Knives—**

See Knives, Mincing.

**Molasses Gates—**

See Gates, Molasses.

**Money Drawers—**

See Drawers, Money.

**Mowers, Lawn—**

Net prices are generally quoted.

Cheap, all sizes, \$1.80 to \$2.10  
Good, all sizes, \$2.50 to \$2.75

10 12 14 16 inch  
High Grade 4.25 4.50 4.75 5.00  
Continental 6.00 to 10.00  
Great American 7.00 to 8.00  
Great American Ball Bearing 6.00 to 10.00  
Quaker City 7.00 to 8.00  
Pennsylvania 6.00 to 10.00  
Pennsylvania Golf 5.00  
Pennsylvania Horse 4.00  
Pennsylvania Pony 4.00  
Philadelphia 4.00

Style M, S, C, K, T. 70¢ to 85¢  
Style A, all Steel 65¢ to 70¢  
Style E, Low Wheel 60¢ to 100¢  
Style E, High Wheel 70¢ to 100¢  
Drexel and Gold Coin, low list 50¢ to 85¢

**Nails—**

Cut and Wire. See Trade Report.

Wire Nail and Brads, Papered.

List July 30, 1899 35¢ to 10¢

Hungarian, Finishing, Upholsterers', &c. See Tacks.

**Horse—**

Nos. 6 7 8 9 10  
A. C. 25¢ 23¢ 22¢ 21¢ 20¢ 40¢ to 55¢  
Ausable 28¢ 26¢ 25¢ 24¢ 23¢ 50¢ to 105¢  
Capwell 19¢ 18¢ 17¢ 16¢ 15¢ 10¢ to 55¢  
C. B. K. 35¢ 34¢ 33¢ 32¢ 31¢ 40¢  
Champion 28¢ 26¢ 25¢ 24¢ 23¢ 40¢  
Clinton 19¢ 17¢ 16¢ 15¢ 14¢ 30¢ to 105¢  
Maud S. 25¢ 23¢ 22¢ 21¢ 20¢ 50¢  
Neponset 23¢ 21¢ 20¢ 19¢ 18¢ 40¢  
Putnam 23¢ 21¢ 20¢ 19¢ 18¢ 35¢ to 45¢  
Vulcan 23¢ 21¢ 20¢ 19¢ 18¢ 35¢ to 45¢  
Amer can, Nos. 5 to 11 10¢ to 90¢  
Jobbers' special brands, per lb. 8¢ to 9¢

**Picture**

1 1/2 2 1/2 3 3 1/2 in.  
Brass Head, 45¢ 60¢ 70¢ 95¢ 1.00 gro.  
Por. Head 1.10 1.10 1.10 gro.

**Nippers, See Pliers and Nippers.**

**Nut Crackers—**

See Crackers, Nut.

**Nuts—**

Cold Punched Off

Mfrs. or U. S. Standard, list.

Hexagon, plain 5.50¢  
Square, plain 5.40¢  
Square, C. T. & R. 5.60¢  
Hexagon, C. T. & R. 5.30¢

Hot Pressed:

Mfrs., U. S. or Nar. Gauge Stand'd.  
Square Blank or Tapped 5.60¢  
Hexagon Blank or Tap'd 5.30¢

**Oakum—**

Best or Government lb. 64¢  
Navy lb. 5¢  
U. S. Navy lb. 54¢  
Plumbers' Spun Oakum 29¢  
In carload lots 1/4 lb. off f.o.b. New York.

**Oil, Axle—**

Snow Flake 1 qt. cans, per doz. \$3.00  
1 gal. cans, per doz. \$4.80  
1 gal. cans, per doz. \$15.00  
5 gal. cans, per doz. \$36.00

**Oil Tanks—See Tanks, Oil.**

**Oilers—**

Brass and Copper 60¢ to 100¢  
Tin or Steel 60¢ to 100¢  
Zinc 60¢ to 100¢

**Paragon:**

Brass and Copper 40¢ to 100¢  
Tin or Steel 60¢ to 100¢  
Zinc 60¢ to 100¢

Malleable, Hammers' Improved, No. 1 \$3.00; No. 2 \$4; No. 3 \$4.40  
Malleable, Hammers' Old Pattern, same list 50¢ to 100¢  
Wilcox & Hobbs Mfg. Co. 70¢ to 100¢  
Spring Bottom Cans 70¢ to 100¢  
Railroad Oilers etc. 60¢ to 100¢

**Openers—**

Can—

French 25¢  
Iron Handle, doz. 25¢  
Sprague, Iron Handle, doz. 35¢ to 40¢  
Sardine Scissors, per doz. \$1.75 to \$3.00  
Tip Top, per doz. \$0.75  
Stowell's, per doz. \$1.75 to \$2.00  
Waldorf, per doz. \$0.65

**Egg—**

Nickel Plate, per doz. \$2.25  
Silver Plate, per doz. \$3.50

**Packing—**

Asbestos Packing, Wick and Rope, 13¢ lb.

**Rubber—**

Sheet, C. I. S. 8¢ to 15¢  
Sheet, C. O. S. 10¢ to 15¢  
Sheet, C. B. S. 10¢ to 15¢  
Sheet, Pure Gum 10¢ to 15¢  
Sh. et. Red 35¢ to 40¢  
Jenkins' Standard, 1/2 lb. 80¢, 25¢ to 35¢

**Miscellaneous—**

American Packing 70¢ to 100¢ lb.  
Cotton Packing 15¢ to 40¢ lb.  
Italian Packing 15¢ to 40¢ lb.  
Jute 35¢ to 40¢ lb.  
Russia Packing 70¢ to 110¢ lb.

**Pails—**

S. S. & Co., with gauges, No. 1 \$0.50;  
No. 2, \$0.75 per doz.

**Galvanized—**

Price per gro.

Quart. 10 12 14  
Water, Regular 18.00 21.00 24.00  
Water, Heavy 24.00 27.00 30.00  
Fire, Rd. Bottom 31.00 33.00 35.00  
Well 27.00 29.00 31.00

**Pans—Dripping—**

Standard List 50¢ to 60¢ to 100¢

**Fry—**

Common Lipped: No. 1 2 3 4 5  
Per doz. \$1.50 75¢ 85¢ 95¢ 1.15

**Roasting and Baking—**

Regal, S. S. & Co., per doz. Nos. 5, \$1.50;  
10 \$5.00; 20 \$5.50; 30 \$6.00

Simplex, per gro. No. 40 \$30.00; 50 \$34.50; 60 \$39.00; 140 \$33.00; 150 \$37.50; 160 \$43.00.

**Paper—**

Building Paper—

Asbestos 1 lb.

Building Felt 3¢  
Mill Board, sheet, 40 x 40 inches 30¢  
Mill Board, roll, thicker than 1-16 inch 6¢  
Mill Board, roll, 1-16 in. thick and less 3¢

Per roll

Rosin Sized Sheathing 500 sq. ft.  
Light wt. 20 lbs. to roll 30¢  
Medium wt. 30 lbs. to roll 40¢  
Heavy wt. 40 lbs. to roll 50¢  
Medium Grades Water Proof Sheathing 60¢ to 1.25  
Deafening Felt, 6 and 1 1/4 sq. ft. to lb., ton \$35.00 to \$7.00

Red Rope Roofing, 250 sq. feet per roll \$1.55

**Tarred Paper.**

1 ply (roll 500 sq. ft.), ton \$26.00 to \$27.00  
2 ply, roll 108 sq. ft. 50¢  
3 ply, roll 108 sq. ft. 70¢  
Slater's Felt (roll 500 sq. ft.) 60¢ to 70¢  
R. H. Stowe Surface Roofing (roll 110 sq. ft.) \$2.75

**Sand and Emery—**

List Dec. 23, 1899 50¢ to 100¢ to 100¢

**Parers—Apple—**

Adams 1 doz. \$1.50  
Baldwin 1 doz. \$5.00  
Bonanza 1 doz. \$5.00  
Dandy 1 doz. \$7.50  
Eureka 1898 1 doz. \$18.00  
Family Bay State 1 doz. \$12.00  
Hudson's Little Star 1 doz. \$4.00  
Hudson's Rocking Table 1 doz. \$5.50  
Improved Bay State 1 doz. \$5.00  
New Lightning 1 doz. \$5.50  
Reading 72 1 doz. \$4.00  
Reading 78 1 doz. \$7.00  
Turn Table '98 1 doz. \$5.50  
White Mountain 1 doz. \$4.00

**Potato—**

Saratoga 1 doz. \$5.50  
White Mountain 1 doz. \$4.50

**Paris Green—**

In Arsenic kegs or casks 13¢  
In kegs, 100 to 175 lbs. 15¢  
In kils, 1 lb. 23.55 lbs. 15¢  
In paper boxes, 2 to 5 lbs. 15¢  
In paper boxes, 1 lb. 14¢  
In paper boxes, 1/2 lb. 15¢  
In paper boxes, 1/4 lb. 16¢

**Picks and Mattocks—**

List Feb. 23, 1899 70¢ to 100¢ to 100¢

**Pinking Irons—**

See Irons, Pinking.

**Pine—Escutcheon—**

Brass 60¢  
Iron, list Nov. 11, '85 60¢

**Pipe, Cast Iron Soil—**

Factory Shipments—Carload lots.

Standard, 2-6 in. 65¢ to 100¢  
Extra Heavy, 2-6 in. 70¢ to 100¢  
Fittings 75¢ to 100¢  
NOTE—Freight allowed on Carload lots.

**Pipe, Merchant, Boiler**

Tubes, &c.—

Less than Carloads to Consumers.

Merchant Pipe.

Galva- nized.

1/2 to 1 inch 61% 45%  
3/4 to 1 inch 68% 56%

**Boiler Tubes**

Up to 25 feet.

Steel.

1 to 1 1/2 inch and 2 1/4 to 5 inch inclusive 65%  
2 to 2 1/2 inch, inclusive 60%  
6 to 10 inches 60%

Iron.

1 to 1 1/2 inch and 2 1/4 in. 43%  
2 1/2 to 3 1/2 inch 45%  
3 1/2 to 4 inch 45%  
4 to 4 1/2 inch 45%  
4 1/2 to 5 inch 45%  
5 to 6 inch 45%  
6 to 8 inch 45%  
8 to 10 inch 45%  
10 to 12 inch 45%  
12 to 14 inch 45%  
14 to 16 inch 45%  
16 to 18 inch 45%  
18 to 20 inch 45%  
20 to 22 inch 45%  
22 to 24 inch 45%  
24 to 26 inch 45%  
26 to 28 inch 45%  
28 to 30 inch 45%  
30 to 32 inch 45%  
32 to 34 inch 45%  
34 to 36 inch 45%  
36 to 38 inch 45%  
38 to 40 inch 45%  
40 to 42 inch 45%  
42 to 44 inch 45%  
44 to 46 inch 45%  
46 to 48 inch 45%  
48 to 50 inch 45%

**Pipe, Sewer—**

Delivered at Eastern Points.

Standards, 2 to 2 1/2 inch 70¢ to 75¢  
Fittings, 2 to 2 1/2 inch 70¢ to 75¢

**Planes and Plane Irons—**

Wood Planes—

Molding 10¢ to 15¢  
Bench, First quality 45¢ to 100¢  
Bench, Second quality 45¢ to 100¢

Balley's (Stanley R. & L. Co.) 50¢ to 100¢ to 100¢  
Gage Self Setting 35¢  
Iron Planes—  
Balley's (Stanley R. & L. Co.) 50¢ to 100¢ to 100¢  
Chaplin's Iron Planes 50¢ to 100¢  
Miscellaneous Planes (Stanley R. & L. Co.) 25¢ to 100¢ to 100¢  
Sargent's 30¢ to 100¢ to 100¢

**Plane Irons—**

Wood Bench Plane Irons 30¢ to 100¢ to 100¢  
Buck Bros. 30¢  
Butcher's 50¢ to 100¢ to 100¢  
Stanley R. & L. Co. 50¢ to 100¢ to 100¢  
L. & J. White 20¢ to 25¢ to 25¢

**Planters, Corn, Hand.**

Kohler's Eclipse 50¢ to 100¢

**Plates—**

Felco 10¢ to 15¢  
Self-Sealing Pie Plates (S. S. & Co.), 50¢  
Gas 50¢

**Pliers and Nippers—**

Button Pliers 70¢ to 100¢ to 75¢  
Gas Burner, per doz., 5 in. \$1.15 to \$1.20; 6 in. \$1.35 to \$1.45  
Gas Pipe 7 8 10 12-14  
1 1/2 2 2 1/2 3 3 1/2 4 5 6 7 8 10 12-14  
Acme Nippers 50¢ to 100¢ to 100¢  
Bernard's 50¢ to 100¢ to 100¢  
Parallel Pliers, &c. 50¢ to 100¢ to 100¢  
Paragon Pliers 50¢ to 100¢ to 100¢  
Lodi Pliers 50¢ to 100¢ to 100¢  
Elm City Fence Pliers 35¢  
Cronk Hammer Co. 75¢ to 100¢  
Improved Button 70¢ to 100¢  
Stub's Pattern 50¢  
Combination and others 25¢  
Holler's Farmers' Nippers, Pinchers and Tools 50¢ to 100¢ to 100¢  
P. S. & W. Tinner's Cutting Nippers 30¢ to 100¢ to 100¢  
Swedish Side, End and Diagonal Cutting Pliers 50¢  
Utica Draw Forge & Tool Co. 40¢  
Pliers and Nippers, all kinds 40¢

**Plumbs and Levels—**

Plumbs and Levels 50¢ to 100¢ to 100¢

Davis Iron, Machinist Nos. 1 to 14 50¢ to 100¢  
Davis Iron, adjustable N. S. 40¢ to 100¢  
Dixson's 70¢  
Pocket Levels 70¢ to 100¢ to 100¢  
Stanley R. & L. Co. 70¢ to 100¢ to 100¢



Acme... 1 1/2 in., 16g; 2 in., 19g  
Common Sense, 1 1/2 in., 18g; 2 in., 20g  
Fox-All-Steel, Nos. 3 and 7, 2 1/2 in., 20g  
No. 9, 1 1/2 in., 18g; 2 in., 20g  
Extra for Plated Finish, 1/2 doz. 30g  
Extra for Anti-Friction Bronze Bushing, 1/2 doz. 10g  
Grand Rapids All Steel Noiseless, 40g  
Ideal No. 13, 1 1/2 in., 18g; 2 in., 19g  
Niagara, 1 1/2 in., 16g; 2 in., 19g  
No. 20, Troy, 1 1/2 in., 14g; 2 in., 16g  
Star, 1 1/2 in., 16g; 2 in., 19g  
Jackie Blocks—See Blocks.

**Pumps—**  
Cistern, 60 to 100 ft. 60g  
Pitcher Spout, 75 to 100 ft. 75g  
Pump Leathers, Lower and Plunger Valve—Per gro. 2 1/2 2 1/2 2 1/2 2 1/2  
Inch. 2 2 1/2 2 1/2 2 1/2  
Inch. 3 3 1/2 3 1/2 3 1/2  
Inch. 4 4 1/2 4 1/2 4 1/2  
Inch. 5 5 1/2 5 1/2 5 1/2  
Inch. 6 6 1/2 6 1/2 6 1/2  
Inch. 8 8 1/2 8 1/2 8 1/2  
Inch. 10 10 1/2 10 1/2 10 1/2  
Inch. 12 12 1/2 12 1/2 12 1/2  
Inch. 14 14 1/2 14 1/2 14 1/2  
Inch. 16 16 1/2 16 1/2 16 1/2  
Inch. 18 18 1/2 18 1/2 18 1/2  
Inch. 20 20 1/2 20 1/2 20 1/2  
Inch. 22 22 1/2 22 1/2 22 1/2  
Inch. 24 24 1/2 24 1/2 24 1/2  
Inch. 26 26 1/2 26 1/2 26 1/2  
Inch. 28 28 1/2 28 1/2 28 1/2  
Inch. 30 30 1/2 30 1/2 30 1/2  
Inch. 32 32 1/2 32 1/2 32 1/2  
Inch. 34 34 1/2 34 1/2 34 1/2  
Inch. 36 36 1/2 36 1/2 36 1/2  
Inch. 38 38 1/2 38 1/2 38 1/2  
Inch. 40 40 1/2 40 1/2 40 1/2  
Inch. 42 42 1/2 42 1/2 42 1/2  
Inch. 44 44 1/2 44 1/2 44 1/2  
Inch. 46 46 1/2 46 1/2 46 1/2  
Inch. 48 48 1/2 48 1/2 48 1/2  
Inch. 50 50 1/2 50 1/2 50 1/2  
Inch. 52 52 1/2 52 1/2 52 1/2  
Inch. 54 54 1/2 54 1/2 54 1/2  
Inch. 56 56 1/2 56 1/2 56 1/2  
Inch. 58 58 1/2 58 1/2 58 1/2  
Inch. 60 60 1/2 60 1/2 60 1/2  
Inch. 62 62 1/2 62 1/2 62 1/2  
Inch. 64 64 1/2 64 1/2 64 1/2  
Inch. 66 66 1/2 66 1/2 66 1/2  
Inch. 68 68 1/2 68 1/2 68 1/2  
Inch. 70 70 1/2 70 1/2 70 1/2  
Inch. 72 72 1/2 72 1/2 72 1/2  
Inch. 74 74 1/2 74 1/2 74 1/2  
Inch. 76 76 1/2 76 1/2 76 1/2  
Inch. 78 78 1/2 78 1/2 78 1/2  
Inch. 80 80 1/2 80 1/2 80 1/2  
Inch. 82 82 1/2 82 1/2 82 1/2  
Inch. 84 84 1/2 84 1/2 84 1/2  
Inch. 86 86 1/2 86 1/2 86 1/2  
Inch. 88 88 1/2 88 1/2 88 1/2  
Inch. 90 90 1/2 90 1/2 90 1/2  
Inch. 92 92 1/2 92 1/2 92 1/2  
Inch. 94 94 1/2 94 1/2 94 1/2  
Inch. 96 96 1/2 96 1/2 96 1/2  
Inch. 98 98 1/2 98 1/2 98 1/2  
Inch. 100 100 1/2 100 1/2 100 1/2

**Punches—**  
Revolving (4 tubes), doz. \$3.50 to \$5.75  
Saddlers' or Drive, good, doz. 65 to 70c  
Spring, single tube, good quality, 1.65 to 1.75  
Bemis & Call Co.'s Cast Steel Drive, 50g  
Bemis & Call Co.'s Cheek, 55g  
Bemis & Call Co.'s Spring, 45g  
Niagara Hollow Punches, 55g  
Niagara Solid Punches, 55g  
Steel Screw, B. & K. Mfg. Co., 40g  
Timmers' Hollow, P. S. & W. Co., 35 to 45g  
Timmers' Solid, P. S. & W. Co., 60g

**Rail—Barn Door, &c.—**  
Barn Door, Light, 1/2 3/4 3/4 1/2 in., 100 feet, \$2.00 to \$3.50  
B. D. for N. E. Hangers, 100 feet, \$2.00 to \$3.50  
Sliding Door, Braced Wt. Iron, ft. 61g  
Sliding Door, Iron Painted, 1/2 doz. 30g  
Sliding Door, Wrought Brass, 1/2 doz. 30g  
Cronk's Double Braced Steel Rail, 1/2 doz. 30g  
Cronk's O. N. T. Rail, 1/2 doz. 30g  
Lanes' O. N. T., 100 ft., 1 inch, 82.75  
Lanes' Standard, 100 ft., 1 inch, 3.75  
Lawrence Bros., 100 ft., 1 inch, 4.45  
McKinney's None Better, 100 ft., 1 inch, 3.95  
McKinney's Standard, 100 ft., 1 inch, 4.45  
Stowell's Cast Rail, 100 ft., 1 inch, 1.15  
Stowell's Steel Rail, Plain, 100 ft., 1 inch, 1.15  
Stowell's Wrought Bracket, Plain, 100 ft., 1 inch, 1.15

**Rakes—**  
Net Prices, Malleable Rakes:  
Shank, 10 12 14 16-tooth  
Socet, 1.50 1.60 1.75 1.85  
Sept. 1, 1900, List:  
Cast Steel, 70c to 85c  
Malleable, 70c to 85c  
Lawn Rakes, Metal Head, per doz., 20 teeth, \$3.25 to \$3.50  
24 teeth, \$3.50 to \$3.75  
Fort Madison Red Head Lawn, 24 teeth, \$3.25  
Fort Madison Blue Head Lawn, 24 teeth, \$3.00  
Jackson Lawn, 20 and 24 teeth, 1/2 doz. \$4.00

**Rasps, Horse—**  
Dixson's, 75g  
Heller Bros., 60 to 100g  
McCarthy File Co. Horse Rasps, 60 to 100g  
New Nicholson Horse Rasp, 70 to 100g  
See Also Files.

**Razors—**  
Barclay  
Fox Razors, No. 42, 1/2 doz. \$3.00  
Fox Razors, No. 44, 1/2 doz. \$3.00  
Fox Razors, No. 82, Platina, 1/2 doz. \$24.00  
Silb-rasteln:  
Carbo Magnetic, 18.00  
Griffin, No. 60, 35.00  
Griffin, No. 60, 35.00  
All other Razors, 12.00  
Safety Razors, 40g  
Razor Strops—See Strops, Razor.

**Reels—Fishing—**  
Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Poplar and Salmon, Single Action, Multiply, 1/2 in. to 4 in. quadruple, all sizes, 25g  
Hendryx Single Action, Series, 102P and PN, 202P and PN, 102P and PN, 202P and PN, 304P and PN, 304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor, 50g  
Hendryx Multiplying and Quadruple Series, 3004N and PN, 42 and PN, 2004N and PN, 00290PN, 0924 and 0924N, 5009N and PN, 402 to 10g  
Shakespeare, Style C, 25g

**Registers—**  
Leading Scales:  
Black Jap., 60 to 100g  
White Jap., 60 to 100g  
Bronzed, 60 to 100g  
Nickel Plated, 60 to 100g  
Electro Plated, 60 to 100g  
There is a good deal of irregularity in prices of Registers, and some very low quotations on current Black Japaned.

**Revolvers—**  
Single Action, 80 to 85c  
Double Action, 31.35  
Automatic, 7.75  
Hammerless, 3.25  
Riddles, Grain or Sand, 16 in. per doz. \$2.00 to \$2.25  
27 in. per doz. \$2.50 to \$2.75

**18 in. per doz. \$2.50 to \$2.75**  
**Rings and Ringers—**  
Steel, 1/2 3/4 3/4 1/2 in., 100 feet, \$2.00 to \$3.50  
Copper, 1.10 1.20 1.30 1.40  
Hog Rings and Ringers—  
Hill's Rings, gro. boxes, \$4.50 to \$5.75  
Hill's Rings, Gray Iron, doz. 55 to 60c  
Hill's Rings, Mal. Iron, per doz. 75 to 80c  
Blair's Rings, per gro. \$5.75 to \$6.00  
Blair's Ringers, per doz. \$0.65 to .70  
Brown's Rings, per gro. \$6.00 to \$6.25  
Brown's Ringers, per doz. \$1.00 to \$1.10  
Rapid Rings, per doz. \$6.00  
Rapid Ringers, per doz. \$3.50

**Rivets and Burrs—**  
Copper, 50 to 50c  
Iron or Steel:  
Timmers' 70 to 70c  
Miscellaneous 70 to 70c  
**Rivet Sets—See Sets.**  
**Roasting and Baking Pans—See Pans, Roasting and Baking.**  
**Rollers—**  
Acme, Stowell's Anti-Friction, 50g  
Horn Door, Sargent's list, 50 to 100g  
Cronk's Stay, 6g  
Cronk's Brinkerhoff, 40g  
Lane's Stay, 33g  
Stowell's Barn Door Stay, 1/2 doz. \$1.25

**Rope—**  
Manila, 7-16 in. and larger lb. 9 1/2 to 10 1/2  
Manila, 3/4 in. lb. 1.10 to 1.15  
Manila 1/4 & 5-16 in. lb. 1.05 to 1.10  
Manila, Tarred Rope, 15 thread, lb. 9 1/2 to 10 1/2  
Manila Hay Rope, Medium, lb. 9 1/2 to 10 1/2  
Sisal, 7-16 in. and larger lb. 7 to 7 1/2  
Sisal, 3/4 in. lb. 7 1/2 to 7 3/4  
Sisal 1/4 and 5-16 in. lb. 8 to 8 1/2  
Sisal, Hay Rope, 2 to 10 ply, lb. 7 to 7 1/2  
Sisal, Tarred, Medium Lath Yarn, lb. 6 1/2 to 6 3/4  
Cotton Rope: Best, 1/4 in. and larger lb. 14c  
Medium, 1/4 in. and larger lb. 11 1/2c  
Com., 1/4 in. and larger lb. 9c  
Jute Rope, No. 1, 1/4 in. and up, lb. 6 1/2c  
Jute Rope, No. 2, 1/4 in. and up, lb. 6c  
4c less in good lots

**Wire Rope—**  
Galvanized, 25 to 7 1/2c  
Plain, 30 to 7 1/2c  
**Ropes, Hammock**  
Covert Mfg. Co., 45 to 50c  
Covert Saddlery Works, 60 to 85c  
**Rules—**  
Bozevod, 75 to 100c  
Ivory, 100 to 100c  
Larkin's Steel, 50 to 100c  
Larkin's Lumber, 50 to 100c  
Stanley & L. Co., 40 to 100c  
Poxwood, 75 to 100c  
Ivory, 35 to 100c

**Sad Irons—See Irons, Sad.**  
**Sand and Emery Paper and Cloth—**  
See Paper and Cloth.  
**Sash Cords—See Cord, Sash.**  
**Sash Locks—See Locks, Sash.**  
**Sash Weights—**  
See Weights, Sash.  
**Sausage Stuffers or Fillers—**  
See Stuffers or Fillers Sausage.

**Saw Frames—**  
See Frames, Saw.  
**Saw Sets—See Sets, Saw.**  
**Saw Tools—See Tools, Saw.**  
**Saws—**  
Circular, 50 to 50c  
Band, 50 to 100c  
Cross Cut, 35 to 55c  
Muley, Mill and Drag, 50 to 100c  
One-Man Saw, 40g  
Wood Saws, 40g  
Hand, Compass, &c., 40g  
Disston's:  
Circular Solid and Inserted Tooth 50g  
Band 1/2 to 1 1/2 in. wide, 60g  
Crosscut, 70g  
Narrow Crosscut, 50 to 50c  
Muley, Mill and Drag, 50g  
Framed Woodsaws, 35 to 37g  
Wood-saw Blades, 40 to 40g  
Wood-saw Rols, 25g  
Hand Saws, Nos. 12, 99, 9, 16, 1100, D8, 120, 75, 77, 8, 25 to 37g  
Hand Saws, Nos. 7, 107, 107 1/2, 0, 00, Combination, 30 to 30g  
Compass, Keyhole, &c., 25 to 27g  
Butcher Saws and Blades, 35 to 35g  
C. E. Jennings & Co.'s:  
Back Saws, 25g  
Butcher Saws, 25g  
Compass and Key Hole Saws, 25g  
Framed Wood Saws, 40g  
Hand Saws, 25 to 30g  
Wood Saw Blades, 45g

**Peace—**  
Circular and Mill, 50g  
Cross Cuts, list Jan. 1, '99, 50g  
Hand, Panel and Rip, 30g  
Richardson:  
Circular and Mill, 50g  
Hand &c., 30g  
X Cuts, list Jan. 1, '99, 50g  
Simonds:  
Circular Saws, 50g  
Crescent Ground Cross Cut Saws, 35g  
One-Man Cross Cuts, 40 to 10g  
Gang Mill, Muley and Drag Saws, 50g  
R and Saws, 50g  
Rack Saws, 50g  
Butcher Saws, 25 to 25g  
Hand Saws, 25 to 25g  
Compass, Keyhole, &c., 25 to 25g

**Scale Beams—**  
See Beams, Scale.  
**Scales—**  
Family, Turnbull's, 30 to 30c  
Counter:  
Taco, Platform, 1/2 doz. \$5.50  
Two Platform, 1/2 doz. \$8.00  
Union Platform, Plain, \$1.70 to \$1.90  
Union Platform, Striped, \$1.85 to \$2.15  
Castillon's:  
Favorite, 25g  
Grocers' Trip Scales, 50g  
Pelouze Scales—Household, Counter, Confectionery, Postal, Ice, &c., 70g  
The Standard—Portables, 45g  
The Standard—R. R. and Wagon, 50g

**Scrapers—**  
Box, 1 Handle, doz. \$2.25 to \$2.50  
Box, 2 Handle, doz. \$3.75 to \$4.00  
Ship, No. 1, doz. \$3.50; No. 2, \$2.25 to \$2.40  
Adjustable Box Scraper (S. R. & L. Co.), \$3.00 to \$3.10  
**Screens, Window and Frames—**  
Bonzia Window Screens, 40 to 40c  
Fiver Pattern Window Screens, 40 to 40c  
Maine Window Screen Frames, 40 to 40c  
Perfection Window Screens, 60 to 60c  
Phillips' Window Screen Frames, 40 to 40c  
Porter's Humbird Window Screens, 40 to 40c  
Porter's Klondike Window Screens, 40 to 40c  
Wabash Spring Adj. Screen, 50g  
See Also Doors.

**Screw Drivers—**  
See Drivers, Screw.  
**Screws—**  
Bench and Hand—  
Bench, Iron, doz. 1 in., \$3.00 to \$3.25  
1 1/4, \$3.50 to \$3.75; 1 1/2, \$4.00 to \$4.50  
Bench, Wood, Bench, doz. \$3.50 to \$2.75  
Hand, Wood, 30 to 50c  
Hand, R. W. Mfg. Co., 35g  
Coach, Lag and Hand Rail—  
Lag, Common Point, list Oct. 1, 75 to 150g  
Coach and Lag, Gimlet Point, list Oct. 1, '99, 75 to 100g  
Hand Rail, list Jan. 1, '99, 75 to 100g  
Jack Screws—  
Standard List, 75 to 75c  
Mills Falls, 50 to 100c  
Mills Falls, Roller, 50 to 100c  
P. S. & W., 50 to 50c  
Sargent, 70 to 100c

**Machine—**  
List Jan. 1, '99.  
Flat or Round Head, Iron, 50 to 50c  
Flat or Round Head, Brass, 50 to 50c  
**Set and Cap—**  
Set (Iron or Steel), 70 to 100c  
Sq. Hd. Cap, 65 to 100c  
Hex. Hd. Cap, 65 to 100c  
**Wood—**  
List Jan. 1, 1900.  
Manufacturers' printed discounts:  
Flat Head, Iron, 75 to 75c  
Round Head, Iron, 85 to 85c  
Flat Head, Brass, 85 to 85c  
Round Head, Brass, 85 to 85c  
Flat Head, Bronze, 75 to 75c  
Round Head, Bronze, 75 to 75c  
Drive Screws, 85 to 85c  
**Scroll Saws—See Saws, Scroll.**  
**Scythes—**  
Grass Scythes:  
Natural Finish, per doz. \$7.25  
Polished Blade, per doz. \$7.75  
Painted or Bronzed, per doz. \$7.50  
Weed and Bush, per doz. \$7.25 to \$7.50  
**Scythe Snaths—**  
See Snaths, Scythe.

**Seeders—Raisin—**  
Enterprise, 25 to 30g  
**Sets—Awl and Tool—**  
Brad Awl and Tool Sets:  
Wood Hdl., 10 Awls doz. \$2.00 to \$2.25  
Wood Hdl., 14 Awls, 6 Tools, doz. \$3.50 to \$2.60  
Aiken's Sets, Awl and Tools:  
No. 20, 1/2 doz. \$1.00 to 50 to 100g  
Fraser's, 3, 12; 4, 2; 5, 1; 6, 1; 7, 1; 8, 1; 9, 1; 10, 1; 11, 1; 12, 1; 13, 1; 14, 1; 15, 1; 16, 1; 17, 1; 18, 1; 19, 1; 20, 1; 21, 1; 22, 1; 23, 1; 24, 1; 25, 1; 26, 1; 27, 1; 28, 1; 29, 1; 30, 1; 31, 1; 32, 1; 33, 1; 34, 1; 35, 1; 36, 1; 37, 1; 38, 1; 39, 1; 40, 1; 41, 1; 42, 1; 43, 1; 44, 1; 45, 1; 46, 1; 47, 1; 48, 1; 49, 1; 50, 1; 51, 1; 52, 1; 53, 1; 54, 1; 55, 1; 56, 1; 57, 1; 58, 1; 59, 1; 60, 1; 61, 1; 62, 1; 63, 1; 64, 1; 65, 1; 66, 1; 67, 1; 68, 1; 69, 1; 70, 1; 71, 1; 72, 1; 73, 1; 74, 1; 75, 1; 76, 1; 77, 1; 78, 1; 79, 1; 80, 1; 81, 1; 82, 1; 83, 1; 84, 1; 85, 1; 86, 1; 87, 1; 88, 1; 89, 1; 90, 1; 91, 1; 92, 1; 93, 1; 94, 1; 95, 1; 96, 1; 97, 1; 98, 1; 99, 1; 100, 1; 101, 1; 102, 1; 103, 1; 104, 1; 105, 1; 106, 1; 107, 1; 108, 1; 109, 1; 110, 1; 111, 1; 112, 1; 113, 1; 114, 1; 115, 1; 116, 1; 117, 1; 118, 1; 119, 1; 120, 1; 121, 1; 122, 1; 123, 1; 124, 1; 125, 1; 126, 1; 127, 1; 128, 1; 129, 1; 130, 1; 131, 1; 132, 1; 133, 1; 134, 1; 135, 1; 136, 1; 137, 1; 138, 1; 139, 1; 140, 1; 141, 1; 142, 1; 143, 1; 144, 1; 145, 1; 146, 1; 147, 1; 148, 1; 149, 1; 150, 1; 151, 1; 152, 1; 153, 1; 154, 1; 155, 1; 156, 1; 157, 1; 158, 1; 159, 1; 160, 1; 161, 1; 162, 1; 163, 1; 164, 1; 165, 1; 166, 1; 167, 1; 168, 1; 169, 1; 170, 1; 171, 1; 172, 1; 173, 1; 174, 1; 175, 1; 176, 1; 177, 1; 178, 1; 179, 1; 180, 1; 181, 1; 182, 1; 183, 1; 184, 1; 185, 1; 186, 1; 187, 1; 188, 1; 189, 1; 190, 1; 191, 1; 192, 1; 193, 1; 194, 1; 195, 1; 196, 1; 197, 1; 198, 1; 199, 1; 200, 1; 201, 1; 202, 1; 203, 1; 204, 1; 205, 1; 206, 1; 207, 1; 208, 1; 209, 1; 210, 1; 211, 1; 212, 1; 213, 1; 214, 1; 215, 1; 216, 1; 217, 1; 218, 1; 219, 1; 220, 1; 221, 1; 222, 1; 223, 1; 224, 1; 225, 1; 226, 1; 227, 1; 228, 1; 229, 1; 230, 1; 231, 1; 232, 1; 233, 1; 234, 1; 235, 1; 236, 1; 237, 1; 238, 1; 239, 1; 240, 1; 241, 1; 242, 1; 243, 1; 244, 1; 245, 1; 246, 1; 247, 1; 248, 1; 249, 1; 250, 1; 251, 1; 252, 1; 253, 1; 254, 1; 255, 1; 256, 1; 257, 1; 258, 1; 259, 1; 260, 1; 261, 1; 262, 1; 263, 1; 264, 1; 265, 1; 266, 1; 267, 1; 268, 1; 269, 1; 270, 1; 271, 1; 272, 1; 273, 1; 274, 1; 275, 1; 276, 1; 277, 1; 278, 1; 279, 1; 280, 1; 281, 1; 282, 1; 283, 1; 284, 1; 285, 1; 286, 1; 287, 1; 288, 1; 289, 1; 290, 1; 291, 1; 292, 1; 293, 1; 294, 1; 295, 1; 296, 1; 297, 1; 298, 1; 299, 1; 300, 1; 301, 1; 302, 1; 303, 1; 304, 1; 305, 1; 306, 1; 307, 1; 308, 1; 309, 1; 310, 1; 311, 1; 312, 1; 313, 1; 314, 1; 315, 1; 316, 1; 317, 1; 318, 1; 319, 1; 320, 1; 321, 1; 322, 1; 323, 1; 324, 1; 325, 1; 326, 1; 327, 1; 328, 1; 329, 1; 330, 1; 331, 1; 332, 1; 333, 1; 334, 1; 335, 1; 336, 1; 337, 1; 338, 1; 339, 1; 340, 1; 341, 1; 342, 1; 343, 1; 344, 1; 345, 1; 346, 1; 347, 1; 348, 1; 349, 1; 350, 1; 351, 1; 352, 1; 353, 1; 354, 1; 355, 1; 356, 1; 357, 1; 358, 1; 359, 1; 360, 1; 361, 1; 362, 1; 363, 1; 364, 1; 365, 1; 366, 1; 367, 1; 368, 1; 369, 1; 370, 1; 371, 1; 372, 1; 373, 1; 374, 1; 375, 1; 376, 1; 377, 1; 378, 1; 379, 1; 380, 1; 381, 1; 382, 1; 383, 1; 384, 1; 385, 1; 386, 1; 387, 1; 388, 1; 389, 1; 390, 1; 391, 1; 392, 1; 393, 1; 394, 1; 395, 1; 396, 1; 397, 1; 398, 1; 399, 1; 400, 1; 401, 1; 402, 1; 403, 1; 404, 1; 405, 1; 406, 1; 407, 1; 408, 1; 409, 1; 410, 1; 411, 1; 412, 1; 413, 1; 414, 1; 415, 1; 416, 1; 417, 1; 418, 1; 419, 1; 420, 1; 421, 1; 422, 1; 423, 1; 424, 1; 425, 1; 426, 1; 427, 1; 428, 1; 429, 1; 430, 1; 431, 1; 432, 1; 433, 1; 434, 1; 435, 1; 436, 1; 437, 1; 438, 1; 439, 1; 440, 1; 441, 1; 442, 1; 443, 1; 444, 1; 445, 1; 446, 1; 447, 1; 448, 1; 449, 1; 450, 1; 451, 1; 452, 1; 453, 1; 454, 1; 455, 1; 456, 1; 457, 1; 458, 1; 459, 1; 460, 1; 461, 1; 462, 1; 463, 1; 464, 1; 465, 1; 466, 1; 467, 1; 468, 1; 469, 1; 470, 1; 471, 1; 472, 1; 473, 1; 474, 1; 475, 1; 476, 1; 477, 1; 478, 1; 479, 1; 480, 1; 481, 1; 482, 1; 483, 1; 484, 1; 485, 1; 486, 1; 487, 1; 488, 1; 489, 1; 490, 1; 491, 1; 492, 1; 493, 1; 494, 1; 495, 1; 496, 1; 497, 1; 498, 1; 499, 1; 500, 1; 501, 1; 502, 1; 503, 1; 504, 1; 505, 1; 506, 1; 507, 1; 508, 1; 509, 1; 510, 1; 511, 1; 512, 1; 513, 1; 514, 1; 515, 1; 516, 1; 517, 1; 518, 1; 519, 1; 520, 1; 521, 1; 522, 1; 523, 1; 524, 1; 525, 1; 526, 1; 527, 1; 528, 1; 529, 1; 530, 1; 531, 1; 532, 1; 533, 1; 534, 1; 535, 1; 536, 1; 537, 1; 538, 1; 539, 1; 540, 1; 541, 1; 542, 1; 543, 1; 544, 1; 545, 1; 546, 1; 547, 1; 548, 1; 549, 1; 550, 1; 551, 1; 552, 1; 553, 1; 554, 1; 555, 1; 556, 1; 557, 1; 558, 1; 559, 1; 560, 1; 561, 1; 562, 1; 563, 1; 564, 1; 565, 1; 566, 1; 567, 1; 568, 1; 569, 1; 570, 1; 571, 1; 572, 1; 573, 1; 574, 1; 575, 1; 576, 1; 577, 1; 578, 1; 579, 1; 580, 1; 581, 1; 582, 1; 583, 1; 584, 1; 585, 1; 586, 1; 587, 1; 588, 1; 589, 1; 590, 1; 591, 1; 592, 1; 593, 1; 594, 1; 595, 1; 596, 1; 597, 1; 598, 1; 599, 1; 600, 1; 601, 1; 602, 1; 603, 1; 604, 1; 605, 1; 606, 1; 607, 1; 608, 1; 609, 1; 610, 1; 611, 1; 612, 1; 613, 1; 614, 1; 615, 1; 616, 1; 617, 1; 618, 1; 619, 1; 620, 1; 621, 1; 622, 1; 623, 1; 624, 1; 625, 1; 626

often shaded by jobbers \$0.50 @ 1.00, and common, Plain Back Shovels are generally sold by jobbers at \$6.75.

**Sieves and Sifters—**  
Hunter's Imitation, gro. \$1.00 @ 10.00  
Buffalo Metallico Blue, S. & Co., gr. \$1.00 @ 10.00  
14x16 10x18 18x20  
12x16 12x18 12x20  
F. J. Meyers' Mfg. Co.:  
Eclipse, gr. \$9.25  
Excelsior, gr. \$10.35  
Hunter's Genuine, gr. \$11.50  
No Name, Hunter's, gr. \$11.50  
Standard, gr. \$10.50  
Shaker (Barber's Pat.) Flour Sifters, gr. \$2.00 @ 10.00

**Sieves, Tin Rim—**  
Per dozen  
Mesh, 1 1/2 16 18 20  
Black, full size, \$0.95 58 1.00 1.10  
Plated, full size, \$1.05 1.05 1.10 1.10  
Black, scant, \$0.78 .80 .83

**Sieves, Wooden Rim—**  
Nested, 10, 11 and 12 Inch  
Mesh 18, Nested, doz. \$0.65 @ 0.75  
Mesh 20, Nested, doz. .75 @ .85  
Mesh 24, Nested, doz. .90 @ 1.00

**Sinks—Cast Iron—**  
Standard list, 65 @ 65 @ 10%  
NOTE.—There is not entire uniformity lists used by jobbers.

**Wrought Steel—**  
New Era, Galv'd and Enamelled, 70 @ 5%  
New Era, Painted, 70 @ 10%  
L. & G. Mfg. Co., Galvanized, 50%  
L. & G. Mfg. Co., Enamelled, 50%

**Sinks, Wagon—**  
Cast Iron, 70 @ 10 @ 75%  
Malleable Iron, 40 @ 10 @ 50%  
Steel, 40 @ 10 @ 10%

**Slates—**  
Factory Shipments.  
"D" Slates, 50 @ 10 @ 10%  
Unexcelled etc., Noiseless Slates, 60 @ 10 @ 10 @ 10 @ 10 @ 10 @ 10%  
Victoria etc., Noiseless Slates, 60 @ 10 @ 10 @ 10 @ 10 @ 10 @ 10%  
Wire Bound, 50 @ 10 @ 55%  
Web Hinge, 60%

**Slaw Cutters—See Cutters.**  
**Slicers, Vegetable—**  
Sterling \$3.00, 39 1/2%

**Snaps, Harness—**  
German, 40 @ 40 @ 10%  
Covert Mfg. Co.:  
Derby, 25 @ 25%  
High Grade, 45 @ 25%  
Jockey, 40 @ 25%  
Trojan, 45 @ 25%  
Yankee, 35 @ 25%  
Yankee, Roller, 30 @ 25%

**Covert's Saddlery Works:**  
Crown, 80%  
German, 80%  
Model, 60%  
Triumph, 60%  
W. & E. T. Fitch Co.:  
Bristol, 40 @ 10%  
Empire, 50 @ 5%  
German, 40%  
National, 50 @ 5%  
Perfect, 40%  
Clippert, 50 @ 5%  
Champion, 40%  
Security, 40%  
Victor, 60 @ 5%  
Oneida Community:  
Solid Steel, 65 @ 65 @ 0%  
Solid Swivel, 65 @ 10 @ 65 @ 10 @ 10%  
Sargent's Patent Guarded, 65 @ 10%

**Snaths—**  
Scythe, 45 @ 5 @ 5%

**Snips, Tinner's—See Shears.**

**Soldering Irons—**  
See Irons, Soldering.

**Spoke Trimmers—**  
See Trimmers, Spoke.

**Spoons and Forks—**  
Silver Plated.

Good Quality, 50 @ 10 @ 60 @ 10 @ 5%

Cheap, 60 @ 60 @ 10%

International Silver Co.:  
1847 Rogers Bros, 40 @ 10%

Rogers & Bros., William Rogers Eagle Brand, and Rogers & Hamilton, 30 @ 10%

Anchor, Rogers Brand, 40%

Wm. Rogers & Son, 60 @ 10%

Elmore L. & Geo. H. Rogers Co., 60%

Silver Plated Flat Ware, 60 @ 10%

No. 17 Silver Plated Ware, 60 @ 10%

**Miscellaneous—**  
German Silver, 60 @ 10 @ 60 @ 10 @ 10%

Elmore L. & Geo. H. Rogers Co., 60%

German or Nickel Silver, Special list 1 @ 10%

**Tinned Iron—**  
Teas, per gro. 45 @ 50%

Tables, per gro. 90 @ 1.00

**Springs—Door—**  
Gem (Coll), 20%

Star (Coll), 30%

Torrer's Rod, 39 in., doz. \$1.10 @ 1.25

Victor (Coll), 50 @ 10 @ 10%

**Carriage, Wagon, &c.**  
Factory Shipments.

14 in. and wider:  
Black or 1/2 Bright, lb., 50

Bright, lb., 50

Painted Seat Springs:  
1 1/2 x 2 1/2 and smaller, per pr. 30

1 1/2 x 2 1/2 and smaller, per pr. 30

1 1/2 x 2 1/2 and narrower, per pr. 75c

**Sprinklers, Lawn—**  
Enterprise, 25 @ 20%

Philadelphia No. 1, doz. \$1.10 @ 1.25

\$1.15 No. 3, 24.

**Squares—**  
Nickel plated, List Jan. 5, 1900

Steel and Iron, 70 @ 10 @ 75%

Rosewood Hdl Try Square and T-Bevels, 60 @ 10 @ 10%

Iron Hdl. Try Squares and T-Bevels, 40 @ 10 @ 10%

Diastion's Try Sq. and T-Bevels, 60 @ 10%

Winterbottom's Try and Miter, 50 @ 10%

## Squeezers—

### Lemon—

Wood, Common, gro., No. 0, \$5.55  
\$5.50; No. 1, \$6.25 @ \$6.50.  
Wood, Porcelain Lined:  
Cheap, doz. \$3.00 @ 2.75  
Good Grade, doz. \$5.00 @ 5.50  
Tinned Iron, doz. \$0.75 @ 1.55  
Iron, Porcelain Lined doz. \$1.90 @ 5.55  
Jennings' Star, doz. \$1.55 @ 1.90

## Staples—

Barbed Blind, lb. 7 @ 7 1/2c  
Electricians', Association list, 80 @ 10 @ 10%  
Fence Staples, same price as Barbed Wire. See Trade Report.  
Poultry Netting, Staples, per lb. 3 1/2 @ 4 1/2c  
Grand Crossing Tack Co.'s list, 80 @ 10%

## Steels, Butchers'—

Dick's, 30%  
Footers, 30%  
C. & A. Hoffmann's, 40%

## Steelyards—

Blacksmiths', 40 @ 10 @ 10%

Gardner Die Stocks, No. 1, 50%

Gardner Die Stocks, larger sizes, 40%

Green River, 25%

Lighting Screw Plate, 25%

Rece's New Screw Plates, 25%

Curtis Reversible Ratchet Die Stock, 25%

## Stone—

### Scythe Stones—

Chicago Wheel & Mfg. Co.:  
Gem Corundum, 10 inch, \$3.00 per gro. 12 inch, \$10.50  
Pike Mfg. Co. 1901 list:  
Black Diamond S. S., gr. \$12.00  
Lamotte S. S., gr. \$11.00  
White Mountain S. S., gr. \$9.00  
Green Mountain S. S., gr. \$6.00  
Extra Indian Pond S. S., gr. \$7.50  
No. 1 Indian Pond S. S., gr. \$7.00  
No. 2 Indian Pond S. S., gr. \$4.50  
Leader Red End S. S., gr. \$4.50  
Balance of 1901 list 38 1/2%

### Oil Stones, &c.

Chicago Wheel & Mfg. Co. 1901 list:  
Gem Corundum Oil, Double Grit, 50%  
Gem Corundum Axe, Single or Double Grit, 55%  
Gem Corundum Slips, 55%  
Gem Corundum Razor Hones, 59%

Pike Mfg. Co. 1901 list:  
Arkansas Stone, No. 1, 5 to 5 1/2 in., \$2.50

Arkansas Stone, No. 1, 5 to 5 1/2 in., \$4.50

Arkansas Slips No. 1, 1, 40%

Lily White Washita 4 to 8 in., 60%

Rosy Red Washita, 4 to 8 in., 60%

Washita Stone, Extra, 4 to 8 in., 60%

Washita Stone, No. 1, 4 to 8 in., 40%

Washita Stone, No. 2, 4 to 8 in., 90%

Lily White Slips, 90%

Rosy Red Slips, 80%

Washita Slips, Extra, 80%

Washita Slips, No. 1, 70%

India Oil Stones (entire list) 25%

Hindostan No. 1, Regular, 10 @ 10%

Hindostan No. 1, Small, 10 @ 10%

Axe Stones (all kinds), 40%

Turkey Oil Stones, ex. 5 to 8 in., 30%

Queer Creek Slips, 10 @ 10%

Sand Stone, 10 @ 10%

Belgian, German and Swaty Razor Hones, 40%

Natural Grit Carving Knife Hones, 40%

Quick Edge Pocket Knife Hones, 40%

Mounted Kitchen Sand Stone, 40%

Doz. \$1.50

Tanite Mills:  
Emery Oil, doz. \$3.00, 50 @ 60%

## Stoners—

### Cherry—

Enterprise, 25 @ 30%

## Stops, Bench—

Millers Falls, 15 @ 10%

Morrill's, 15 @ 10%, 50 @ 20%

Morrill's, No. 2, \$11.00, 50 @ 10%

## Stops, Window—

Ives' Patent, 25 @ 25%

## Stove Boards—

See Boards, Stove.

## Stove Polish—See Polish, Stove.

## Strainers Pump—

Diamond Joe Pump Strainers, per doz. 75%

## Straps, Box—

Carry's Universal, case lots, 20 @ 10%

## Stretchers, Carpet—

Cast Iron, Steel Points, doz. 55 @ 65c

Socket, doz. \$1.75

## Strops, Razor—

Smith & Hemenway Co., 70%

## Stuffers, Sausage—

Enterprise Mfg. Co., 25 @ 25 @ 7 1/2%

National Specialty Mfg. Co., list Jan. 1, '97, 30%

## Tacks Brads, &c.—

List Jan. 15, '99.

Carpet Tacks, American 90 @ 10 @ 10%

American Cut Tacks, 90 @ 10 @ 10%

Swedes Iron Tacks, 90 @ 10 @ 10%

Swedes Upholsterers' Tacks, 90 @ 10 @ 10%

Gimp Tacks, 90 @ 10 @ 10%

Lace Tacks, 90 @ 10 @ 10%

Trimmers' Tacks, 90 @ 10 @ 10%

Looking Glass Tacks, 70 @ 10%

Bill Posters' and Railroad Tack, 90 @ 30 @ 10%

Hungarian Nails, 80 @ 15%

Common and Patent Brads, 80 @ 10%

Trunk and Clout Nails, 80 @ 10%

NOTE.—The above prices are for straight weights. An extra 5% is given Star Weights and an extra 10% on Standard Weights.

## Miscellaneous—

Double Point Tacks, 90 @ 10 @ 7 tens

Steel Wire Brads, R. & E. Mfg. Co.'s list, 50 @ 10 @ 50%

See also Nails, Wire.

## Tanks, Oil—

Emerald, S. S. & Co., 30-gal. \$3.20

Emerald, S. S. & Co., 60-gal., \$4.00

Queen City S. S. & Co., 70-gal., \$3.50

Queen City S. S. & Co., 60-gal., \$4.25

## Tapes, Measuring—

American Asses' Skin, 40 @ 10 @ 30%

Patent Leather, 25 @ 30 @ 55%

Steel, 40 @ 10 @ 55%

Chesterman's, 25 @ 25 @ 55%

Eddy's Steel, 40 @ 10 @ 55%

Eddy's Metallic, 33 1/2 @ 33 1/2 @ 55%

Keuffel & Esser Co., Steel and Metallic, Lower list, 1899, 35%

Larkin's Steel, 33 1/2 @ 35%

Larkin's Metallic, 30 @ 30 @ 55%

## Teeth Harrow

Steel Harrow, Teeth, plain or headed, base per lb., 2 1/2c

## Thermometers—

Tin Case, 80 @ 10 @ 30 @ 10 @ 5%

## Ties, Bale—Steel.

Standard Wire, 50 @ 10 @ 5%

## Ties, Wall—

Cleveland Wire Spring Co.:  
Galv. St. el 5 3/8 x 6 1/4 in. # 1000, \$10.00

Galv. Steel 5 3/8 x 6 1/4 in. # 1000, \$11.00

Galv. Steel 5 3/8 x 1 1/4 in. # 000, \$12.00

Galv. Steel 5 3/8 x 1 1/4 in. # 1000, \$14.00

## Tinner's Shears, &c.—

See Shears, Tinner's, &c.

## Tinware—

Stamped, japanned and Pieced, sold very generally at net prices.

## Tire Benders, Upsetters, &c.—See Benders and Upsetters, Tire.

## Tobacco Cutters—

See Cutters, Tobacco.

## Tools—

### Coopers'—

L. & I. J. White, 20 @ 30 @ 25%

### Saw—

Atkins' Cross Cut Saw Tools, 40%

Simonds' Improved, 39 1/2%

Simonds' Crescent, 25%

### Ship—

L. & I. J. White, 25%

## Transom Lifters—

See Lifters, Transom.

## Traps—Game—

Oneida Pattern, 75 @ 5 @ 75 @ 10 @ 5%

Newhouse, 45 @ 45 @ 5%

Hawley & Norton, 65 @ 5 @ 65 @ 10%

Victor (Oneida Pattern), 75 @ 75 @ 5%

Star (Blake Pattern), 65 @ 10 @ 70 @ 5%

## Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 8 1/2 @ 9c

Mouse, Round or Square Wire, doz. \$0.85 @ 1.00

## American Pattern French Rat and Mouse Traps—

No. 1, Detroit Marty Pattern, per doz. \$4.50; in 1/2 gro. lots, per doz., \$4.00

No. 2, Detroit Marty Pattern, per doz. \$4.25; in 1/2 gro. lots, per doz., \$3.90

Detroit Marty Pattern Mouse, per doz. \$2.00; in 1/2 gro. lots, per doz., \$1.75

Diamond Joe Mouse Traps, per doz. \$1.00

Diamond Joe Rat Traps, per doz. \$1.00

Marty French Rat and Mouse Traps (Genuine):  
No. 1, Rat, Each \$1.13 1/2; per doz. \$12.00

No. 3, Rat, per doz. \$6.00; case of 50, \$2.25 doz.

No. 3 1/2, Rat, per doz. \$4.75; case of 72, \$4.25 doz.

No. 4, Mouse, per doz. \$3.50; case of 72, \$2.75 doz.

No. 5, Mouse, per doz. \$2.75; case of 72, \$2.25 doz.

Schnyer's Rat Killer, No. 1, per doz. \$30.00;

No. 2, per doz. \$30.00; Mouse, No. 3, \$18.00, 50%

## Fly—

Balloon, Globe or Acme, doz. \$1.15 @ 1.25; gro. \$1.50 @ 1.10



|  |     |     |
|--|-----|-----|
| Combination Black.....                   | 40¢ | 50¢ |
| Combination Bright.....                  | 40¢ | 50¢ |
| Cylinder or Gas Pipe.....                | 50¢ | 50¢ |
| Extra Heavy.....                         | 45¢ | 50¢ |
| Merrick's Pattern.....                   | 50¢ | 50¢ |
| No. 3 Pipe, Bright.....                  | 50¢ | 50¢ |
| Hindley Automatic.....                   | 80¢ | 80¢ |
| Boariman's.....                          | 85¢ | 85¢ |
| Coe's Genuine.....                       | 40¢ | 10¢ |
| Coe's Machine.....                       | 40¢ | 10¢ |
| Donohue's Engineer.....                  | 40¢ | 10¢ |
| Eagle.....                               | 50¢ | 10¢ |
| Gem Pocket.....                          | 80¢ | 80¢ |
| Hercules.....                            | 70¢ | 70¢ |
| Knife Handle, Machinists' (W. & B.)..... | 50¢ | 10¢ |
| Cass lots.....                           | 50¢ | 10¢ |
| Less than case lots.....                 | 50¢ | 50¢ |
| Improved Pipe (W & B.).....              | 6¢  | 6¢  |
| Solid Handles, P.S. & W.....             | 50¢ | 50¢ |
| Triumph.....                             | 60¢ | 10¢ |

**Wrought Goods—**

Staples, Hooks, etc., list March 17

72.....85¢
 50¢ |

**Yokes, Neck—**

Coverl Saddlery Works, Trimme 1.60
 25¢ |

Coverl Saddlery Works, Neck Yoke
 70¢ |

Centers.....
 70¢ |

**Yokes, Ox, and Ox Bows—**

Fort Madison's Farmers & Freighters'.....
 list act |

**Zinc—**

Sheet.....
 75¢ |

|  |    |     |
|--|----|-----|
| Linseed, City, boiled.....                   | 84 | ②85 |
| Linseed, State and West'n, raw               | 80 | ②81 |
| Linseed, raw Calcutta seed.....              | 78 | ②79 |
| Lard, Prime.....                             | 69 | ②70 |
| Lard, Extra No.....                          | 60 | ②62 |
| Lard, No. 1.....                             | 50 | ②54 |
| Cotton-seed, Crude.....                      | 45 | ②46 |
| Cotton-seed, Summer Yellow,<br>prime.....    | 39 | ②40 |
| Cotton-seed Summer Yellow,<br>of grades..... | 37 | ②38 |
| Sperm, Crude.....                            | 62 | ②63 |
| Sperm, Natural Spring.....                   | 61 | ②62 |
| Sperm, Bleached Spring.....                  | 61 | ②62 |
| Sperm, Natural Winter.....                   | 61 | ②62 |
| Sperm, Bleached Winter.....                  | 64 | ②65 |
| Wahls, Crude.....                            | 52 | ②53 |
| Whale, Natural Winter.....                   | 52 | ②53 |
| Whale, Bleached Winter.....                  | 52 | ②53 |
| Menhaden, Crude, Sound.....                  | 33 | ②34 |
| Menhaden, Light Strad.....                   | 30 | ②31 |
| Menhaden, Bleached Winter.....               | 32 | ②33 |
| Menhaden, Ex Bleached Winter.....            | 35 | ②36 |
| Sallow, prime.....                           | 52 | ②53 |
| Cocoonut, Cochin.....                        | 6  | ②6  |
| Cod, Domestic.....                           | 32 | ②33 |
| Cod, Newfoundland.....                       | 34 | ②35 |
| Red Elaine.....                              | 34 | ②35 |
| Red Saponified.....                          | 35 | ②36 |
| Oil, Italian, bbis.....                      | 60 | ②61 |
| Neatfoot, prime.....                         | 52 | ②53 |
| Palm, prime, Lagos.....                      | 55 | ②56 |

Entered at the Post Office, New York, as Second-class Matter.

